BERNINA 580

made to create BERNINA

Dear Bernina Customer,

Congratulations! You've decided on BERNINA, a reliable choice that will delight you for years to come. For over 100 years, our family has placed the highest value on satisfied customers. For myself, it is a matter of personal pride to offer you Swiss precision at the height of perfection, future-oriented sewing technology, and a comprehensive customer service.

Presenting the B 580, BERNINA launches an ultramodern sewing-/embroidery computer. Apart from the highest demand on technology, we have also focused on the design; after all we sell our products to creative people like you, who expect a high standard of best quality and appreciate the design vocabulary.

Enjoy the creative sewing and embroidery with your BERNINA 580 and find out about our varied range of accessory. Let yourself be inspired by new sewing projects and visit us at www.bernina.com.

And don't forget to make use of service and maintenance offers from our highly trained BERNINA dealers.
I wish you lots of pleasure and many creative hours with your new BERNINA.

H.P. Ueltschi
Owner
BERNINA International AG
CH-8266 Steckborn
www.bernina.com

4. Edition

SAFETY INSTRUCTIONS

IMPORTANT INFORMATION

When using an electrical appliance, basic safety precautions should always be followed, including the following:

Read all the instructions before using this sewing-/embroidery computer.

When the sewing-/embroidery computer is not in use, it should be disconnected from the electricity supply by removing the plug from the outlet.

⚠ DANGER!

To reduce the risk of electrical shock:

1. The sewing-/embroidery computer should never be left unattended when plugged in.
2. Always unplug this sewing-/embroidery computer from the electrical outlet immediately after using and before cleaning.
3. LED Radiation – Do not view directly with optical instruments. Class 1M LED product.

⚠ WARNING!

To reduce the risk of burns, fire, electric shock or injury to persons:

1. Use this sewing-/embroidery computer only for purposes as described in this manual. Use only attachments, accessories and parts recommended by the manufacturer.
2. Do not allow this sewing-/embroidery computer to be used as a toy. Close attention is necessary when this sewing-/embroidery computer is used by or near children and infirm persons. The sewing-/embroidery computer is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the sewing-/embroidery computer by a person responsible for their safety. To ensure children do not play with the sewing-/embroidery computer they must be supervised.
3. Never operate this sewing-/embroidery computer if:
   - it has a damaged cord or plug
   - it is not working properly
   - it has been dropped or damaged
   - it has fallen into water

   Return the sewing-/embroidery computer to your local authorized BERNINA dealer for examination or repair.
4. Never operate the sewing-/embroidery computer with any air openings blocked. Keep ventilation openings of the sewing-/embroidery computer free from the accumulation of lint, dust and loose cloth.
5. Keep fingers away from all moving parts. Special care is required around the sewing needle.
6. Never insert any objects into any openings on the sewing-/embroidery computer.
7. Do not use the sewing-/embroidery computer outdoors.
8. Do not operate the sewing-/embroidery computer where aerosol products (sprays) or oxygen are being used or where oxygen is being administered.
9. Do not pull or push the fabric while stitching. This may deflect the needle, causing it to break.
10. Do not use bent needles.
11. Always use the original BERNINA stitch plate. The wrong stitch plate can cause needle breakage.
12. To disconnect, turn power switch to «0» (off), then remove the plug from the outlet. Do not unplug by pulling the cord, instead grasp the plug to pull it from the outlet.
13. Turn power switch to «0» (off) when making any adjustments in the needle area, such as changing the needle or the presser foot, etc.
14. Always unplug the sewing-/embroidery computer from the electrical outlet when carrying out cleaning or maintenance work or any other user servicing adjustments mentioned in this manual.
15. This sewing-/embroidery computer is provided with double insulation (except USA and Canada). Use only identical replacement parts. See instructions for servicing of double-insulated products.

SERVICING DOUBLE-INSULATED PRODUCTS

In a double-insulated product two systems of insulation are provided instead of grounding. No grounding means is provided on a double-insulated product, nor should a means for grounding be added to the product. Servicing a double-insulated product requires extreme care and knowledge of the system and should be done only by qualified service personnel. Replacement parts for a double-insulated product must be identical to the original parts in the product. A double-insulated product is marked with the words: «DOUBLE INSULATION» or «DOUBLE INSULATED».

The symbol ⧈ may also be marked on the product.

DISCLAIMER

No liability will be assumed for any possible damage which arises from misuse of this sewing-/embroidery computer.
This sewing-/embroidery computer is intended for household use only.
This sewing-/embroidery computer meets the European Standard 2004/108/EC concerning the electromagnetic tolerance.

SAVE THESE INSTRUCTIONS!

Please find the latest version of your instruction manual at **www.bernina.com**

Environmental Protection

BERNINA is committed to the protection of the environment. We strive to minimize the environmental impact of our products by continuously improving product design and our technology of manufacturing.

When your sewing computer won't be used anymore, dispose this product in an environmentally responsible way according to the national directive. Do not throw away this product with your household waste. In case of doubt, please contact your BERNINA dealer.

If the sewing computer is stored in a cold room, it should be brought to a warm room about one hour before use.

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DANGER!
Very important! Risk of injury!

ATTENTION!
Very important! Risk of damage!

Tips!

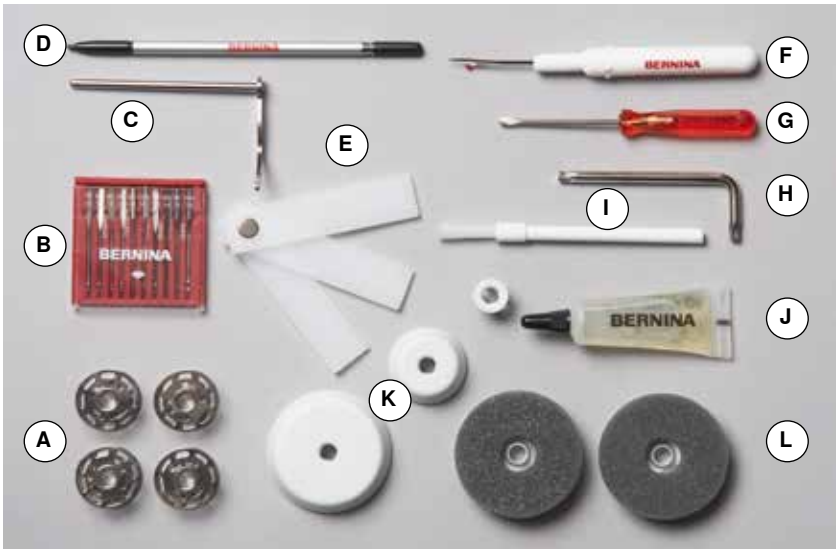
Glossary

Balance	Correcting abnormalities in stitch formation due to the fabric
BERNINA USB stick	Mobile storage medium
Fabric fold	Folded edge of material
BSR	BERNINA-Stitch-Regulator. Quilting with consistent stitch length within a certain speed
clr	Deleting settings or data
Hook	«Catches» the needle-thread loop, forming the stitch together with the lower thread
LMS	Length Measuring System for buttonhole
Memory	Long Term Memory
Satin stitching	Dense Zig-zag
Bartack	Buttonhole-bead cross-connections

All rights reserved
For technical and product improvement reasons, the sewing computer's features, parts and accessory are subject to unannounced changes and alterations at any time. The accessory included can differ from country to country.

Standard Accessory

- Carrier bag
- Accessories box
- Foot control
- Power cable
- Slide-on table
- Seam Guide
- Free Hand System (FHS)



A 5 bobbins (one of them in the bobbin case)
B Selection of needles
C Seam guide, right
D Touch pen
E Height compensation tool
F Seam ripper
G Screwdriver, red
H Angular Torx button
I Lint brush
J Lubricator
K 3 spool discs
L 2 foam pads

Presser feet

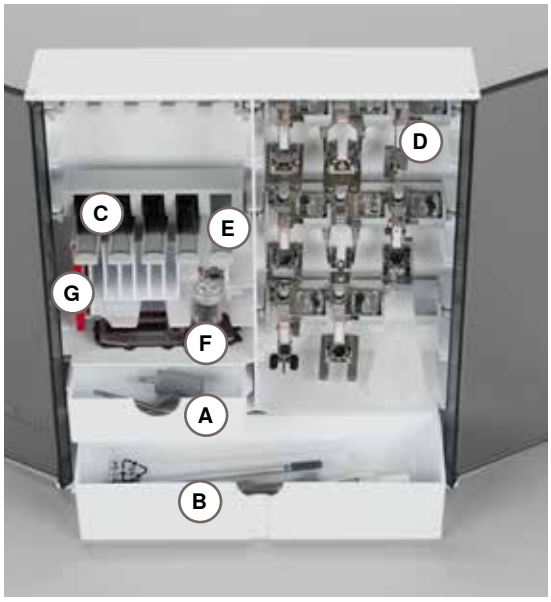
1 No. 1C Reverse pattern foot
2 No. 2A Overlock foot
3 No. 3A Automatic buttonhole foot with slide
4 No. 4 Zipper foot
5 No. 5 Blindstitch foot
6 No. 8 Jeans foot
7 No. 20C Open embroidery foot

Visit **www.bernina.com** for more accessory information.

Accessory box

Storing accessory

- on the back of the box, pull both extensions out until they click into place



Storage example

The box is equipped as standard with one small **A** and one large **B** drawer as well as a compartment for bobbin holders **C** and presser feet **D**.

- to remove a bobbin, press the compartment holder **E** lightly
- buttonhole foot with slide no. 3A can be stored in the left compartment **F**
- store the needle range supplied in the special compartment **G**

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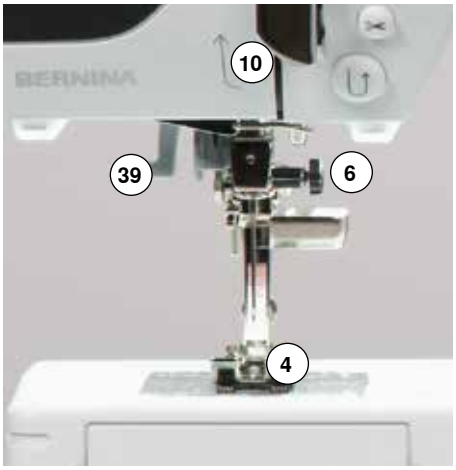
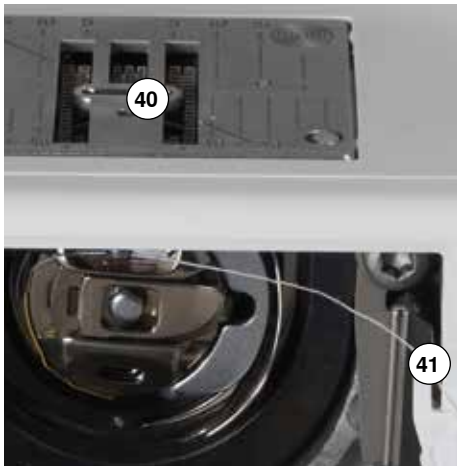
Front view

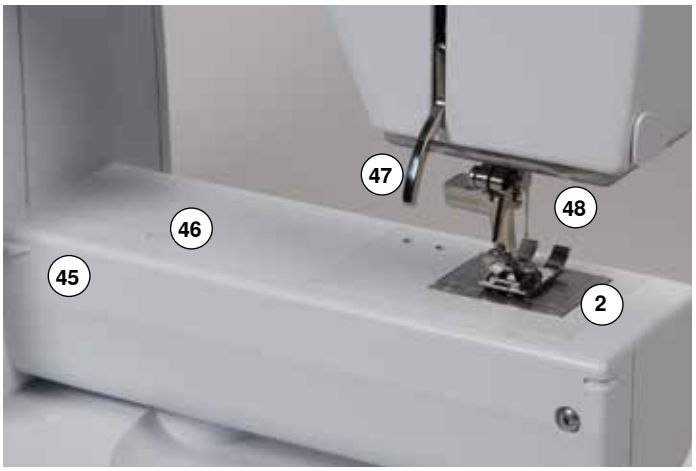
Detail view





1 Bobbin cover
2 Stitch plate
3 Attachment base for special accessories
4 Presser foot
5 LED-sewing light
6 Needle clamp
7 «Quick reverse»-button
8 «Automatic thread cutter»-button
9 «Start/Stop»-button
10 Thread guide
11 Slide Speed Control
12 Thread take-up cover
13 «Needle stop»-button down/up
14 Programmable «Pattern end-/securing»-button
15 Thread take-up lever
16 Pre-tension stud
17 Display
18 «Sewing support»-buttons
- «Home»-button
- «Setup»-button
- «Tutorial»-button
- «Creative Consultant»-button
- «Help»-button
- «eco»-button
- «clr»-button

19 «Needle position»-buttons
20 Stitch length knob
21 Stitch width knob
22 Carrying handle
23 Bobbin winder
24 Thread cutter on bobbin winder
25 Free Hand System connection
26 Rear thread guide
27 Horizontal spool pin
28 Vertical spool pin
29 Eyelet thread guide
30 Handwheel
31 Power switch On «I»/ Off «0»
32 Power plug socket
33 USB-connection
34 PC-connection for embroidery software
35 Connection for embroidery module
36 Foot control socket
37 Feed dog drop
38 Air vents
39 Needle threader
40 Feed dog
41 Cutter for lower thread
42 Presser foot pressure adjustment wheel
43 Headframe fixing screw
44 Thread cutter on the head frame (left)
45 Slide-on table socket
46 Darning hoop connection
47 Presser foot lifter
48 BSR-connection



USA/Canada only: The sewing computer has a polarized plug (one blade wider than the other). To reduce the risk of electrical shock, this plug is intended to fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install the proper outlet. Do not modify the plug in any way!

Power Switch/Power Cable

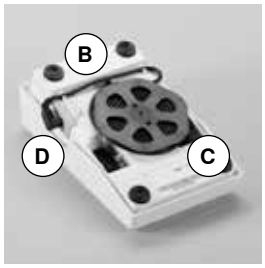
1 Power Switch
The sewing computer is switched on («I») and off («0») with the power switch.

I the sewing computer is switched on
0 the sewing computer is switched off

2 Power plug socket
3 Foot control socket
4 Connection for embroidery module
5 PC-connection for embroidery software
6 USB-connection

Foot control

Before beginning to sew
- unwind the cable
- plug the cable in the outlet provided **A**
- unwind the cable to the desired length and slip into **B** or **C**



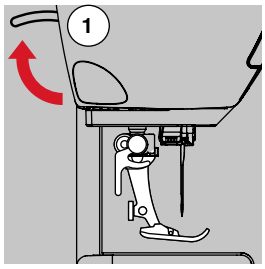
Sewing speed control
Control the sewing speed by pressing the foot control more or less.

Adjust needle down or up
- adjust the down/up position of the needle by sinking the heel back on the foot control

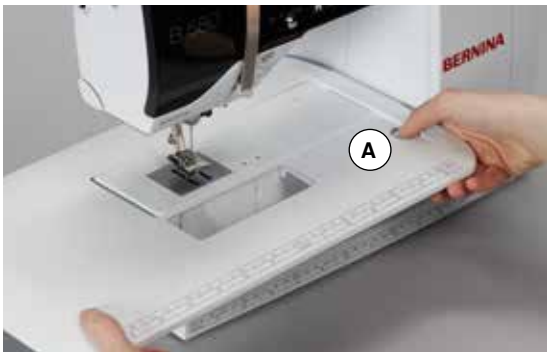
After sewing
- wind the cable around the reel
- plug cable into **D**

> ⚠ **USA/Canada only: Use only foot controller type LV-1 with sewing computer B 580.**

Slide-on table



- turn the handwheel (see page **11**)
  - ► needle is raised
- raise presser foot lifter **1** up
  - ► presser foot is lifted



The slide-on table increases sewing surface.

Attaching the slide-on table
- raise the needle and presser foot
- slide over free-arm to the right until it engages

Removing the slide-on table
- raise the needle and presser foot
- press button **A** down
- pull slide-on table to the left

Seam Guide
- press the release button and insert into the groove (underside of table) from left or right

Can be moved over the entire table length.

Free Hand System (FHS)

The FHS raises and lowers the presser foot.

Attaching the Free Hand System
- insert into the opening

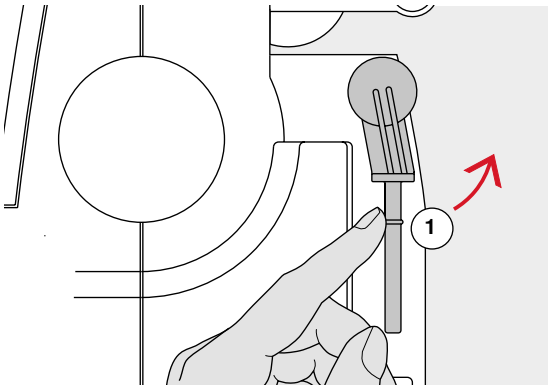
Raising and lowering the presser foot
- with your knee push lever to the right

You should be able to operate the FHS with your knee in your normal sitting position.
- ► the presser foot is raised; the feed dog is lowered simultaneously. The thread tension is released.

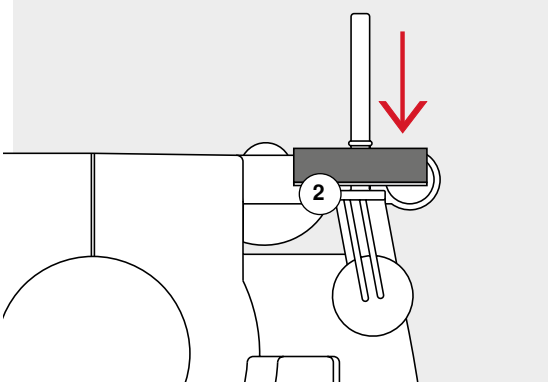
The feed dog is raised as soon as the first stitch is sewn.

Your dealer can adjust the FHS if necessary.

Vertical spool pin

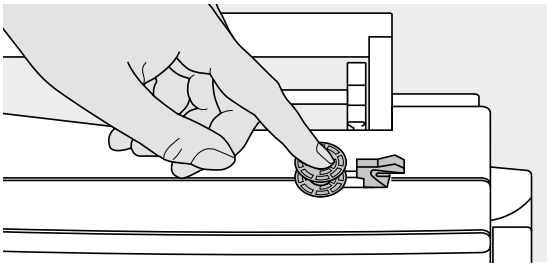


The vertical spool pin is on the side behind the handwheel.
It is an essential aid for sewing with more than one thread, e.g. double needle work and can also be used for winding the bobbin while sewing.
- turn the spool pin **1** as far it will go

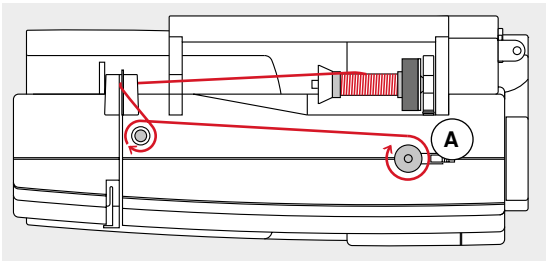


- use foam pad **2** for stability with all thread spools

Winding a bobbin

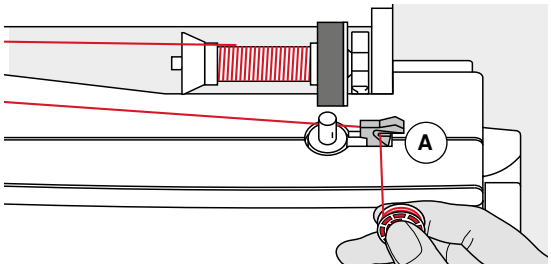


- turn power switch to «I» (on)
- place empty bobbin on spindle

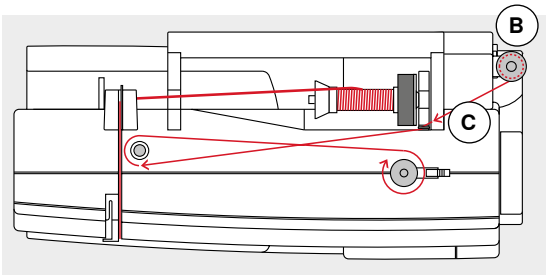


- place foam pad on the spool pin
- place thread on the spool pin
- attach appropriate spool disc
- following the direction of the arrow, take the thread through the rear guide and round the pre-tension stud
- wind the thread two to three times around the empty bobbin
- cut off any excess thread on the thread cutter **A**

Appropriate spool disc
Diameter of thread spool determines disc size. There must be no gap between the disc and the spool.

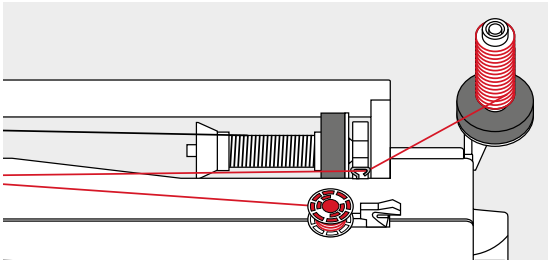


- push engaging lever **A** against bobbin
  - the winder works automatically
  - the Display to wind the bobbin is opened
- move the round knob in the Display to the left/right or
- turn the stitch width knob (see page **10**)
  - the winding speed is altered
  - the motor will stop automatically when the bobbin is full
  - the Display is closed
- remove bobbin and
- pull the thread over thread cutter **A** to cut it



Bobbin winding while sewing

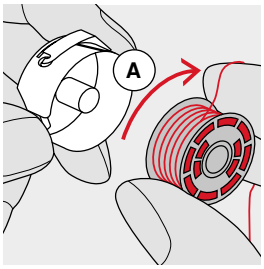
- attach foam pad on the vertical spool pin **B**
- place thread on the vertical spool pin
- following the direction of the arrow, take the thread through the thread guide **C** and
- guide around the pre-tension stud

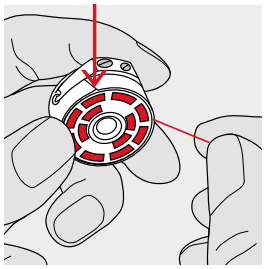


Then proceed as mentioned above.

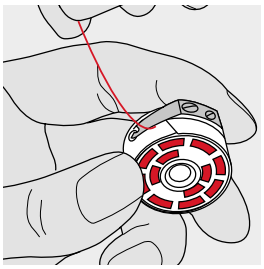
It is recommended to reduce the winding speed when winding from the vertical spool pin.

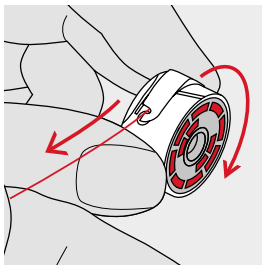
Inserting a bobbin/Threading lower thread





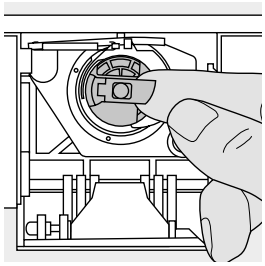
- insert the bobbin so that the thread runs clockwise **A**
- pull the thread from the right into the slot





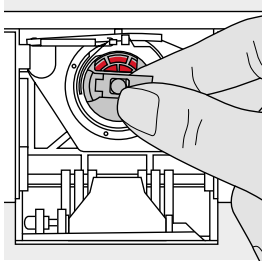
- pull the thread to the left under the spring
- until it lies in the T-shaped slit at the end of the spring
- pull the thread
  - the bobbin must turn clockwise

Exchanging bobbin case



Removing the bobbin case

- raise the needle
- turn power switch to «0» (off)
- open bobbin cover
- grasp the latch of the bobbin case
- remove the bobbin case

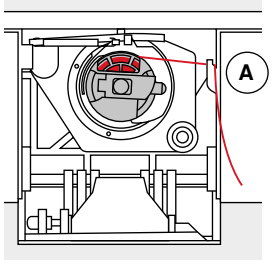


Inserting the bobbin case

- hold the bobbin case latch

Opening of the bobbin case points up.

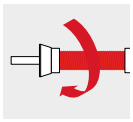
- insert the case so that it clicks into place



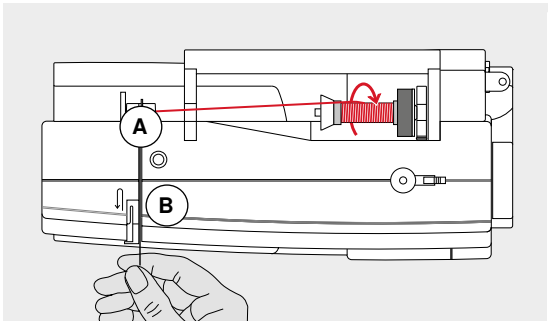
Bobbin thread cutter

- pull the thread over thread cutter **A** to cut it
- close the cover

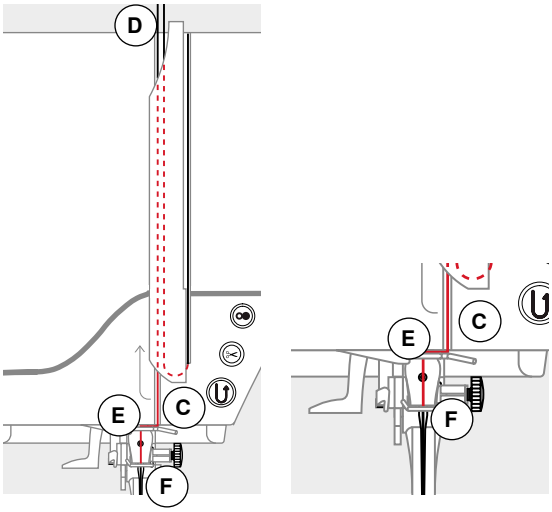
Threading the upper thread



- raise the needle and presser foot
- turn power switch to «0» (off)
- place foam pad on the spool pin
- place spool on pin so that the thread unwinds clockwise
- attach appropriate spool disc



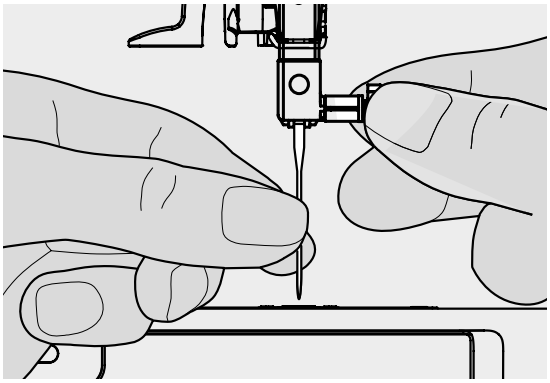
- take thread through rear guide **A**
- then into slit of upper thread tension **B**



- pull thread down to the right of the take-up cover and around **C**
- take thread up to the left of the cover and around **D**, placing it in the take-up lever
- take thread down and through guides **E** and **F**
- thread the needle (see page **18**)

Appropriate spool disc
Diameter of thread spool determines disc size. There must be no gap between the disc and the spool.

Changing the needle



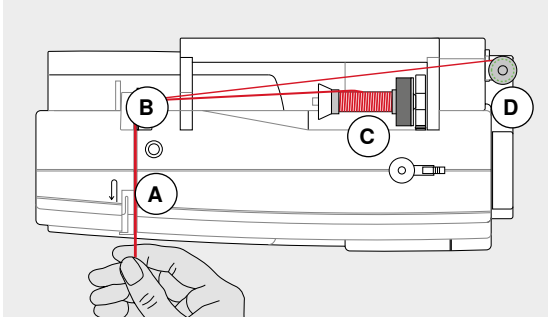
Removing the needle

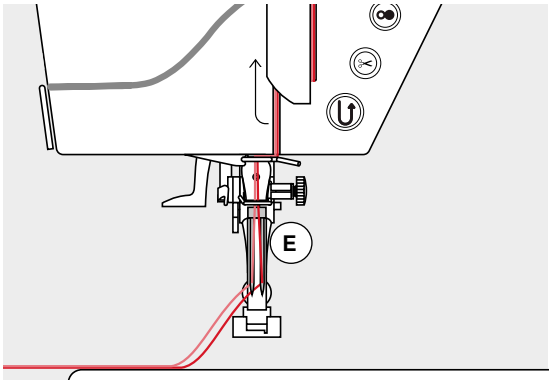
- raise the needle
- lower or remove presser foot (see page **18**)
- turn power switch to «0» (off)
- loosen the needle clamp screw
- pull the needle down to remove

Inserting the needle

- flat side of needle to the back
- insert the needle as far as it will go
- tighten needle clamp screw

Threading the double needle





Threading the first thread

- turn power switch to «0» (off)
- insert double needle
- raise the needle and presser foot
- place foam pad on the spool pin
- place thread spool **C** on horizontal spool pin
- attach appropriate spool disc
- take thread through rear guide **B**
- guide the thread to the front in the slit and past the tension disc **A** on the **right** side
- guide the thread to the needle as usual and
- thread the **right** needle manually

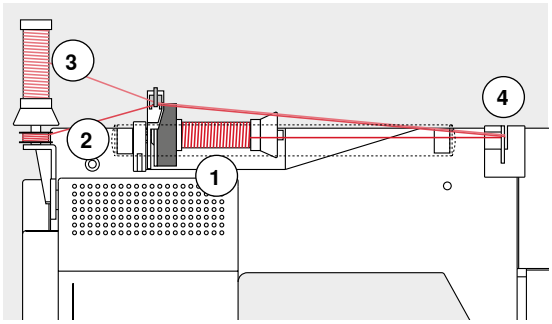
Threading the second thread

- place foam pad on vertical spool pin
- place the second thread spool **D** on the vertical spool pin
- take thread through rear guide **B**
- guide the thread to the front in the slit and past the tension disc **A** on the **left** side
- guide the thread to the needle as usual and
- thread the **left** needle manually

Threads **E** must not be twisted together.

When using the vertical spool pin, always add a foam pad. This prevents the thread from twisting around the spool pin.

Threading the triple needle

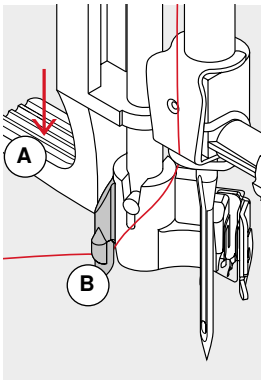


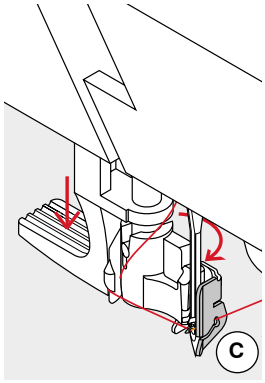
Two thread spools and one full bobbin are needed.

- insert triple needle
- place one thread spool **1** on horizontal spool pin
- place second thread spool **3** and the bobbin **2**, separated by a spool disc, on vertical spool pin (both spools must to turn in the same direction)
- thread as usual and
- guide **two** threads on the **left** side of the tension disc **4** and **one** thread past the **right** side
- guide threads to the needle as usual
- and thread every needle manually

By using the additional eyelet for metallic and silk threads (optional accessory) the thread release from the stacked spool/bobbin can be enhanced.

Thread needle

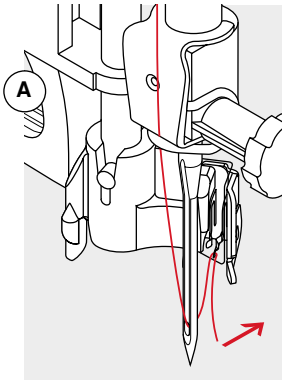


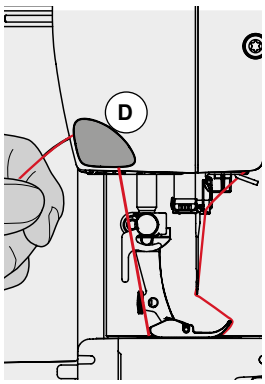


Position the needle by pressing the foot control once (1 stitch).

- raise the needle
- lower the presser foot
- turn power switch to «0» (off)
- hold thread to the left and back
- press lever **A** down and hold it
- guide thread around the hook **B** to the right in front of the needle

- put the thread from the front into the guide **C** until it catches in the wire hook



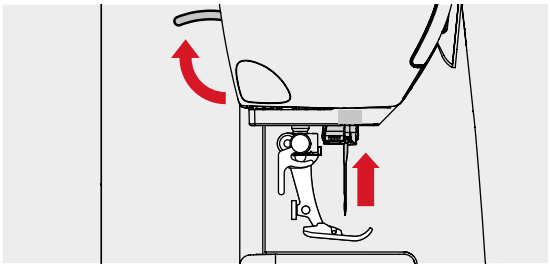


- release lever **A**
- ► needle is threaded
- pull the thread to the back and

- put the thread under the foot and pull it from front to back over the thread cutter on left side of the head frame **D**, cut

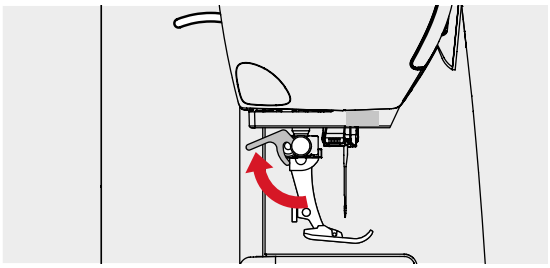
Threads release automatically as soon as the first stitch is sewn.

Changing the presser foot

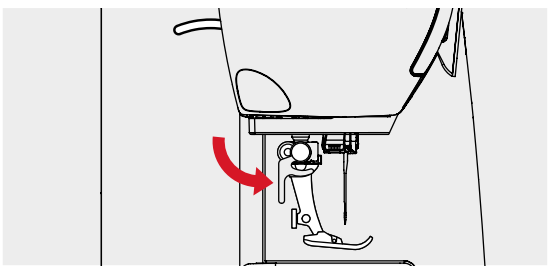


Removing the presser foot

- raise the needle and presser foot
- turn power switch to «0» (off)



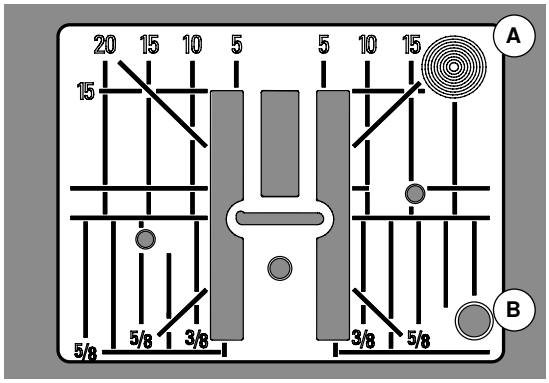
- raise the clamping lever
- remove the presser foot



Attaching the presser foot

- guide the presser foot upwards over the cone
- press the clamping lever down

Stitch plate



Markings on the stitch plate

– the stitch plate is marked with vertical, horizontal and diagonal lines in **mm** and **inches**
– the lines help to guide the fabric for sewing seams and precise topstitching, etc.
– the horizontal markings are helpful for sewing corners and buttonholes, etc.
– the diagonal markings are useful for quilting
– needle insertion point is position «0» (center needle position)
– the vertical measurements correspond to the distance between the needle and the line
– measurements are marked to the right and to the left of center needle position

Removing the stitch plate

- press «Feed dog»-button (see page **11**)
- ► the feed dog is lowered
- turn power switch to «0» (off)
- remove presser foot and needle
- press the stitch plate down at the right back corner **A** until it flips up
- remove the stitch plate

Replacing the stitch plate

- place the stitch plate over the opening **B**
- press down until it clicks into place
- press «Feed dog»-button
- ► the feed dog is raised as soon as the first stitch is sewn

Thread tension

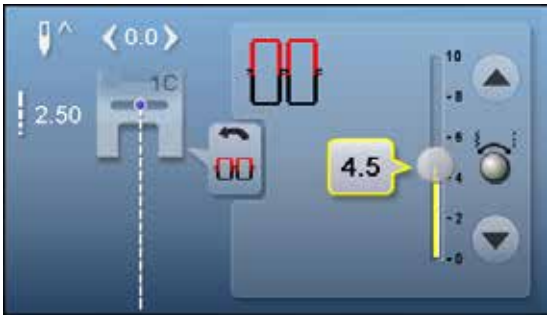
Higher upper thread tension = the upper thread is tightened, which pulls the lower thread up to the topside of fabric.
Lower upper thread tension = the upper thread is loosened, which enables it to be pulled to the backside of the fabric.

Basic settings are applied automatically when a stitch pattern or program is selected.

The upper thread tension is set optimally at the BERNINA factory and the sewing computer has been tested. Metrosene-/Seralon thread size 100/2 (Company Mettler, Switzerland) is used for upper and lower thread.

In case of using other types of sewing or embroidery threads, the optimal tension may vary. Therefore it may be necessary to adjust the upper thread tension according to the fabric and the desired stitch pattern.

- touch «i»-icon
- touch «Upper thread tension»-icon



Changing the upper thread tension

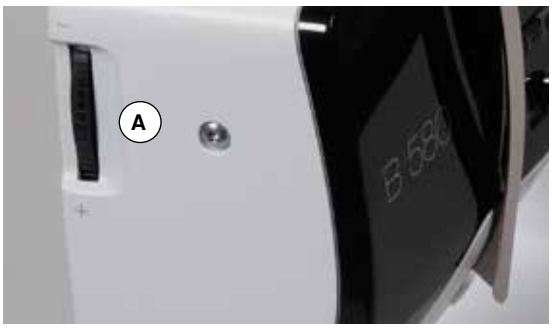
- the optimal stitch formation (stitch formation in the fabric) is visible
- the white bar within the scale and the number in the icon show the basic setting
- touch arrow icon up/down or
- turn stitch width or stitch length knob to the left or to the right or
- move the round knob in the Display using the finger or the touch pen
- upper thread tension is tightened or loosened
- the alteration of the upper thread tension is visible within the scale (yellow) and in the yellow-framed icon
- basic setting remains visible (white)
- the alteration of the upper thread tension only affects the selected stitch

- touch «Back»-icon
- the setting is saved and the Display closes

Reset settings

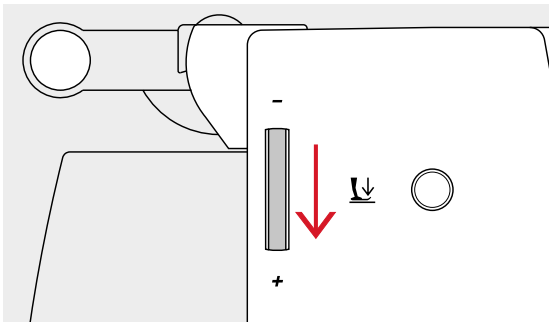
- touch the yellow-framed icon
- basic setting is reset
- switch off the sewing computer
- any alterations are deleted

Adjusting presser foot pressure

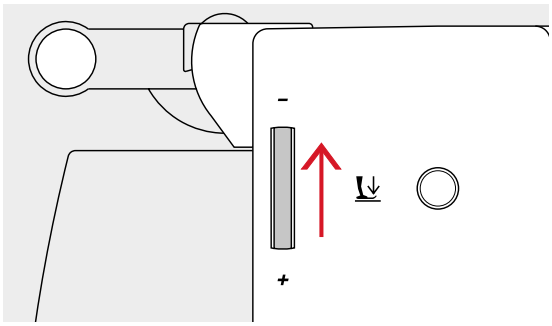


The presser foot pressure is adjusted by the presser foot pressure adjustment wheel **A** on the left side of the headframe.

Pressor foot pressure
Basic setting = 46

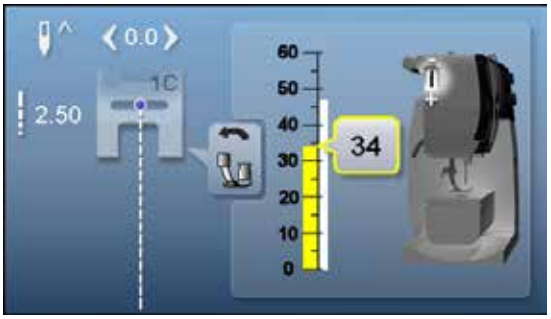


Increasing the presser foot pressure
– for sturdy material e.g. denim
– improves the fabric feed



Reducing pressor foot pressure
– for jersey fabrics and loose knits
– to prevent fabric from stretching
■ adjust pressure so that the fabrics feeds correctly

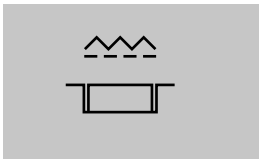
■ touch «i»-icon
■ touch «Pressor foot pessure»-icon



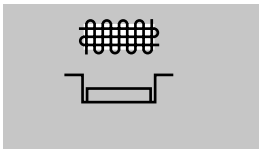
Display pressor foot pressure
► opens the «Pressor foot pressure»-display
► alterations of the pressor foot pressure are visible within the scale (yellow) and in the yellow-framed icon
► basic setting remains visible (white)

Feed dog

Feed dog lowered/ready to sew



«Feed dog»-button **A** flush with housing.
► feed dog is ready to sew

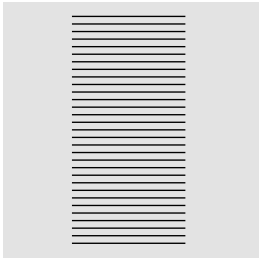


«Feed dog»-button **A** pressed.
► feed dog is lowered
For free-motion sewing (darning, embroidery, quilting, etc.).

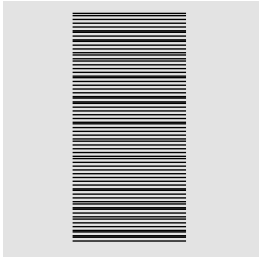
Feed Dog and Fabric Feed

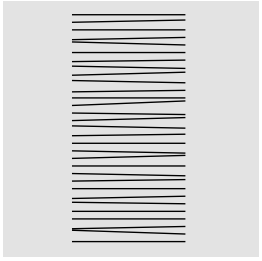
With each stitch the feed dog moves forward by one step. The length of this step is determined by the stitch length selected.

With an extremely short stitch length, the steps are also very short. The fabric moves away from the foot quite slowly, even at full sewing speed. e.g. buttonholes, satin stitch and decorative stitches are all sewn with a very short stitch length.



Let the fabric feed evenly.





ATTENTION!
Pulling, pushing or holding back the fabric can result in damages of the needle and stitch plate.

Pulling, pushing or holding back the fabric will result in uneven stitches.

Important facts about thread and needle

Thread

The thread is chosen accordingly to the purpose. For a perfect sewing result, thread and fabric quality play an important role. It is recommended to use quality brands.

Cotton threads
– cotton threads have the advantage of being a natural fiber and therefore are especially suitable for sewing cotton fabrics
– if cotton thread is mercerized, it has a slight sheen that is not lost with washing

Polyester threads
– polyester thread has a high tensile strength and is particularly colorfast
– polyester threads are more flexible and are recommended where a strong and elastic seam is required

Rayon threads
– rayon threads are made of natural fibers and have a brilliant sheen
– rayon threads are suitable for decorative stitches and achieve a more beautiful effect

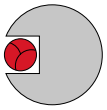
Needle, thread and material

ATTENTION!
Check the needle condition.
As a guide: Replace the needle before starting a new sewing project. A defective needle does not only damage the sewing project but also the sewing computer.

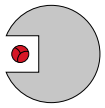
Care must be taken when choosing needle and thread.

The correct needle size depends on the selected thread and fabric. The fabric weight and type determine the thread weight, needle size and point form.

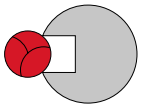
Needles, threads



Correct needle/Thread combination
When sewing, the thread should travel smoothly down the long groove on the front of the needle.



Too thin thread or too thick needle
The thread has too much clearance in the long groove. Skipped stitches and damage to the thread can occur.

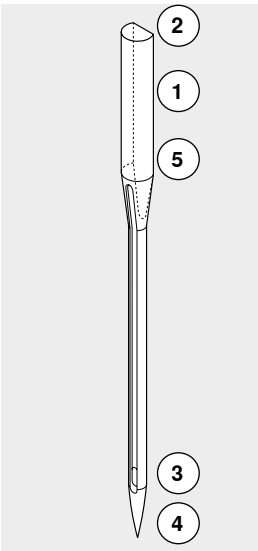


Too thick thread or too fine needle
The thread rubs on the edges of the long groove and can get jammed. This can cause thread breakage.

Guidelines

Material and thread	Needle size
Light weight materials:	
Fine thread (darning thread, embroidery thread)	70-75
Medium weight materials:	
Sewing thread	80-90
Heavy weight materials:	
Sewing thread (quilting thread, topstitching)	100, 110, 120

130/705 H-S/70



1 **130** Shank length
2 **705** Flat shank
3 **H** Needle scarf
4 **S** Needle point (here e.g. medium ball point)
5 **70** Needle size (shank diameter)

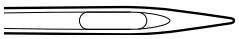
Overview needles

Universal
130/705 H/60-100

Normal point, slightly rounded

For nearly all natural and synthetic fabrics (woven and knitted)

Metafil
130/705 H-MET/75-80 or H-SUK/90-100



Large eye

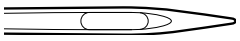
Sewing with metallic threads

Jersey/Stretch
130/705 H-S, H-SES, H-SUK/70-90

Ball point

Jersey, knit and stretch material

Cordonnet (Topstitching)
130/705 H-N/80-100



Small ball point, long eye

Topstitching with thick thread

Leather
130/705 H-LL, H-LR/90-100

With cutting point

All types of leather, synthetic leather, plastic, sheeting

Wing needle (Hemstitch needle)
130/705 HO/100-120

Wide needle (wing)

Hemstitching

Jeans
130/705 H-J/80-110

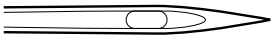
Very fine sharp point

Heavy weight fabrics such as jeans, canvas, overalls

Double wing needle
130/705 H-ZWI-HO/100

For special effects with hemstitch embroidery

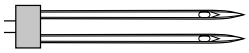
Microtex
130/705 H-M/60-90



Especially fine sharp point

Mircro fiber fabrics and silk

Double needle
130/705 H-ZWI/70-100



Needle distance:
1.0/1.6/2.0/2.5/3.0/4.0/6.0/8.0

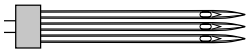
Visible hems in stretch fabrics, pintucks, decorative sewing

Quilting
130/705 H-Q/75-90

Fine sharp point

Straight and topstitching

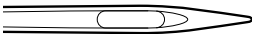
Triple needle
130/705 H-DRI/80



Needle distance: 3.0

Visible hems in stretch fabrics; Decorative sewing

Embroidery
130/705 H-SUK/70-90



Large eye, slight ball point

Embroidery on all natural and synthetic fabrics

Overview «Function»-buttons sewing computer

«Quick reverse»-button
- secures the seam beginning and end: sews in reverse as long as the button is pressed
- used to program the buttonhole length
- used to program the darning length
- used to determine end of stitching in straight stitch Securing stitch No. 5
- used for securing in Quilters securing program No. 1324

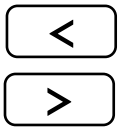
«Start/Stop»-button
- starts and stops the sewing computer when operating it **with** or **without** foot control
- starts and stops the BSR-Function if the BSR foot is attached and activated

«Automatic thread cutter»-button
- upper and lower threads are automatically cut
- 2-6 securing stitches can be programmed in the setup program. These are sewn before the thread is cut

Speed control
- sewing-/embroidery speed is infinitely variable with the slide

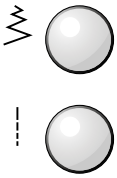
«Needle stop»-button
- touch button
- the needle is raised or lowered in the same way as by sinking the heel back on the foot control

Programmable «Pattern end/Securing»-button
- touch button before the sewing starts or during sewing
- single pattern is secured at the end, with the selected number of stitches programmed
- touch button before the sewing starts or during sewing of a combination
- the combination is secured at the end, with the selected number of stitches programmed
- the number and type of the securing stitches can be programmed in the setup program



«Needle position»-buttons

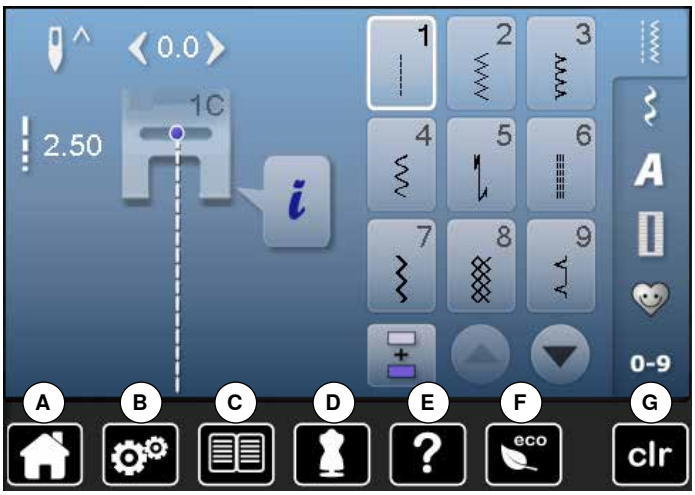
- press the left button
- needle moves to the left
- press the right button
- needle moves to the right
- keep button pressed
- quick change
- total of 11 needle positions (5 left, 5 right, 1 center)



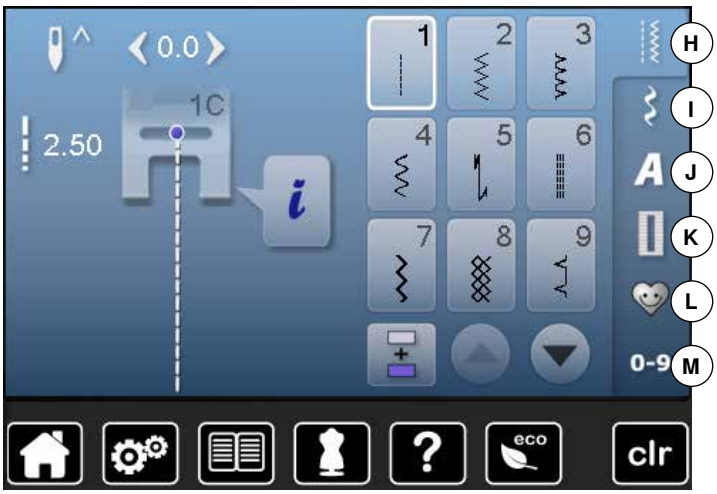
Stitch width and Stitch length Knobs (Multi-function)

- to adjust stitch width or stitch length
- to alter thread tension
- to set the buttonhole slit width or the button size
- to adjust the balance
- various alterations in the setup program
- various alterations when embroidering

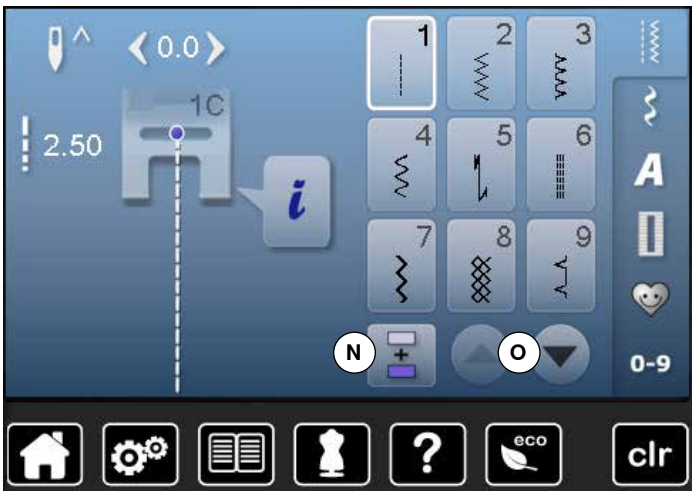
Overview Main Display



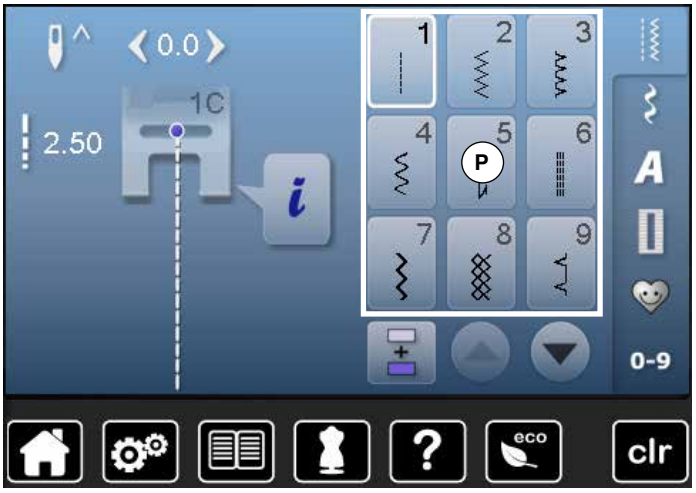
System settings
- **A** Home
- **B** Setup Program
- **C** Tutorial
- **D** Creative consultant
- **E** Help
- **F** ECO
- **G** Deleting settings



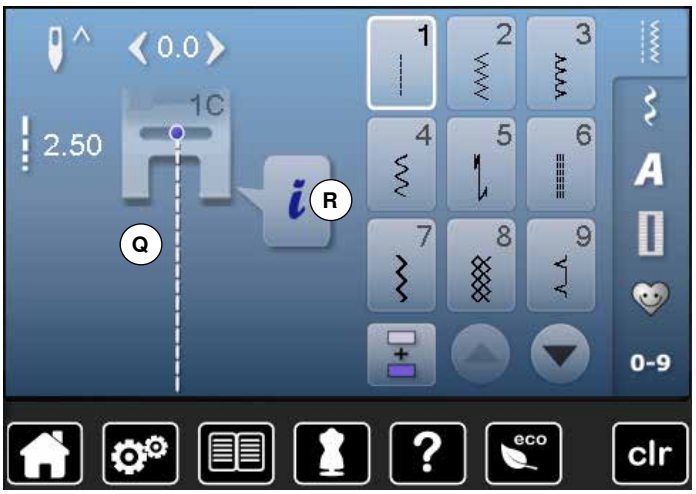
Menu Selection
- **H** Practical stitches
- **I** Decorative stitches
- **J** Alphabets
- **K** Buttonholes
- **L** Personal program/Memory
- **M** Stitch selection by number



Selection
N Single and combi mode
O Scroll up/down



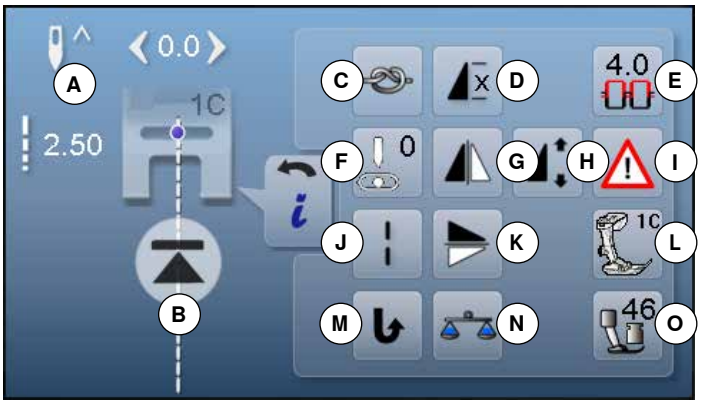
Stitch Pattern selection
P Stitch pattern selections



Stitch Pattern Display
Q Display of the stitch pattern selected
R Information

Overview Sewing functions

- touch «i»-icon
- function Display appears



Functions

A Needle stop up/down
B Pattern begin
C Securing
D Pattern repeat
E Upper thread tension
F Needle position
G Mirror Image (Left/Right)
H To alter pattern length/stitch density
I Security program
J Long stitch
K Mirror image (Up/Down)
L Presser foot indicator
M Permanent reverse sewing
N Balance
O Presser foot pressure

General functions

Information
- touch icon
- another Display is opened

Back
- touch icon
- goes back to the previous Display
- all changes are saved

Confirm selection
- touch icon
- activates or confirms alteration/selection

Leaving the active Display
- touch icon
- the Display is closed
- goes back to the previous Display

Needle stop position up and «Quick Reverse»-button
If the «Quick Reverse»-button is pressed while sewing or after stopping (e.g. zig-zag) with programmed needle stop up, the sewing computer sews one stitch forward before it switches to sewing in reverse.

Needle stop position down and «Quick Reverse»-button
If the «Quick Reverse»-button is pressed after stopping (e.g. zig-zag) with programmed needle stop down, the sewing computer switches to sewing in reverse immediately.

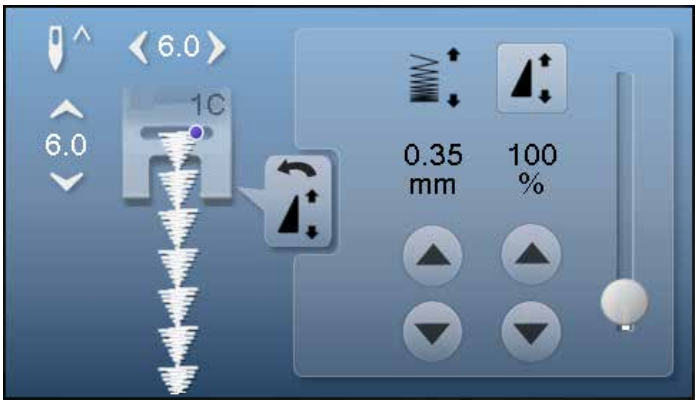
Needle stop up/down
- touch icon
- the arrow on the Display points down
- the sewing computer stops with needle down
- touch the icon again
- the arrow on the Display points up
- the sewing computer stops with needle up

Pattern begin
- the function appears when the sewing computer is stopped while sewing a single stitch or a stitch combination
- the needle moves to the beginning of a stitch pattern or program

Securing
- touch icon before sewing
- the single stitch is secured with four securing stitches at the beginning
- touch icon while sewing a single pattern
- the single stitch is secured at the end
- the sewing computer stops
- to program the securing function within a stitch combination
- any single stitch of the combination can be secured at the begin or at the end

Pattern repeat
- touch icon 1x
- number 1 appears: the sewing computer stops at the end of a single stitch or a stitch combination
- touch icon 2-9x
- numbers 2-9 appear: the sewing computer stops after the selected repeats of single stitches or a stitch combination

Upper thread tension
- change upper thread tension
- the respective value is visible in the icon



Needle position
- move the needle position to the left or to the right touching the arrow buttons left/right or using the touch pen or with the finger
- keep arrow button pressed
- quick moving of the needle
- the needle position is displayed in the yellow-framed icon
- touch yellow-framed icon
- the needle moves to the middle (position 0)

Mirror image (Left/Right)
The sewing computer sews the stitch pattern horizontally mirrored, left/right referring to the sewing direction.

Security program
- touch icon
- touch «Needle»- or «Stitch plate»-icon

Overview Needle:
- touch desired «Needle»-icon
- stitch width is limited automatically
- this prevents the inserted special needle (double needle etc.) from hitting the presser foot or the stitch plate = no needle breakage
- numbers in the needle icons show the needle distance in mm
- touch «Standard needle»-icon
- the standard needle is actived again
- stitch width limitation is deactivated

Overview Stitch plates:
- touch the desired «Stitch plate»-icon
- stitch width is limited automatically
- this prevents the inserted needle from hitting the presser foot or the stitch plate = no needle breakage

The function remains active even when the sewing computer is turned off and on.

Altering pattern length
- move the round knob in the Display using the touch pen or the finger
- pattern length (Standard = 100%) is infinitely variable
- extend or shorten in 1%-steps using the arrow icons or
- touch «Pattern length»-icon
- the pattern length is extended in 100%-steps

Maximum length is 1000%, shortest length is 10%. Some stitch patterns are limited and cannot be extended to 1000%.

Altering stitch density
Certain decorative stitches (e.g. No. 401) allow an alteration of the stitch density. The set stitch pattern length will not be affected.
- touch arrow icon «up»
- the stitch density is reduced in 0.05mm steps
- the stitch distance is enlarged
- touch arrow icon «down»
- the stitch density is increased in 0.05mm steps
- the stitch distance is reduced

Long stitch
- the sewing computer sews every **second** stitch (max. stitch length 10mm)
- applicable for practical and decorative stitches
- **Exception:** buttonholes, alphabets

Mirror image up/down
The sewing computer sews the stitch pattern vertically mirrored up/down referring to the sewing direction.

Presser foot indicator
- touch icon
- the Display is opened showing the optional presser feet for the selected stitch pattern
- touch «Back»-icon
- the Display is closed

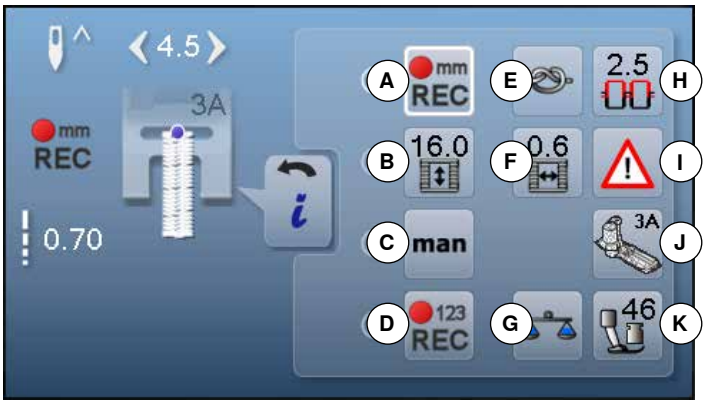
Permanent reverse sewing
The sewing computer sews the selected stitch pattern in reverse.

Balance
Balances forward and reverse stitches.

Pressor foot pressure
The pressor foot pressure is set via the adjustment wheel on the left side of the headframe.
- the respective value is visible in the icon

Overview Functions buttonholes

- touch «Buttonhole»-button
- select the buttonhole
- touch «i»-icon



Altering the buttonhole

A Programs the buttonhole length
B Buttonhole length direct entry
C Manual buttonhole
D Stitch counter buttonhole
E Securing
F Buttonhole slit width
G Balance
H Upper thread tension
I Security program
J Presser foot indicator
K Presser foot pressure

General functions

Information
- touch icon
- ► another Display is opened

Back
- touch icon
- ► goes back to the previous Display
- ► all changes are saved

Confirming selection
- touch icon
- ► activates or confirms alteration/selection

Leaving the active Display
- touch icon
- ► the Display is closed
- ► goes back to the previous Display

Programming buttonhole length
- ► the icon is white-framed after a buttonhole has been selected
- determine the buttonhole length while sewing with the «Quick reverse»-button or
- program the indicated length directly in the icon below by touching the icon
- ► function becomes inactive after programming the length
- if a new length is to be programmed, touch the icon again

Buttonhole length direct entry
Enter the buttonhole length via the stitch width or stitch length knob. Size in mm.

Manual buttonhole
- sew a manual buttonhole in 5 or 7 steps (depending on buttonhole type)
- select every step by touching the arrow icons below the indicated buttonhole

Stitch counter buttonhole
Having sewn the desired length of the 1st bead, then
- press «Quick reverse»-button

Having sewn the desired length of the 2nd bead, then
- press «Quick reverse»-button
- ► Display shows «auto»
- ► the buttonhole is programmed

Securing
- touch icon before sewing
- ► the buttonhole is secured with four securing stitches at the beginning
- touch icon while sewing a buttonhole
- ► the buttonhole is secured at the end
- ► the sewing computer stops

Buttonhole slit width
- set the buttonhole slit width to between 0.1mm and 2.0mm using the stitch width or the stitch length knob or the arrow icons

Balance
Balances forward and reverse stitches.

Upper thread tension
- change upper thread tension
- ► the respective value is visible in the icon

Security program
- touch icon
- touch «Needle»- or «Stitch plate»-icon

Overview Needles:
- touch desired «Needle»-icon
- ► the stitch width is limited automatically
- ► this prevents the inserted special needle (double needle etc.) from hitting the presser foot or the stitch plate = no needle breakage
- ► numbers in the needle icons indicate the needle distance in mm
- touch the «Standard needle»-icon
- ► the standard needle is activated again
- ► stitch width limitation is deactivated

Overview Stitch plates:
- touch desired «Stitch plate»-icon
- ► the stitch width is limited automatically
- ► prevents the inserted needle from hitting the presser foot or the stitch plate = no needle breakage

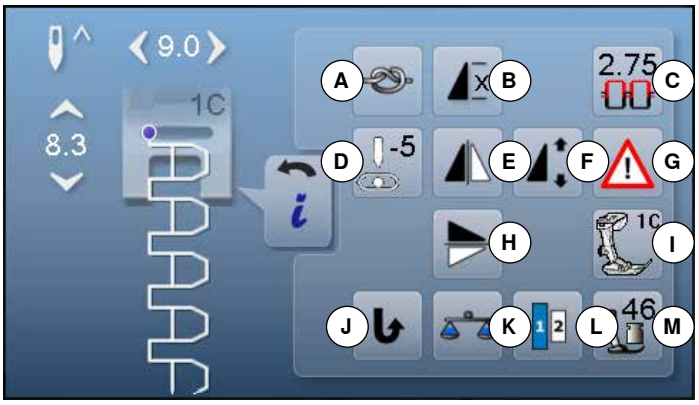
The function remains active even when the sewing computer is turned off and on.

Presser foot indicator
- touch icon
- ► the recommended presser foot is displayed
- ► the active Display shows the optional presser feet for the selected stitch pattern
- touch «Back»-icon
- ► the Display is closed

Presser foot pressure
The presser foot pressure is set via the adjustment wheel on the left side of the headframe.
- ► the respective value is visible in the icon

Overview Functions Alphabets

- touch «Alphabet»-button
- select Alphabet
- touch «i»-icon



Altering Alphabet

A Securing
B Pattern repeat
C Upper thread tension
D Needle position
E Mirror image (Left/Right)
F To alter pattern length
G Security program
H Mirror image down/up
I Presser foot indicator
J Permanent reverse sewing
K Balance
L Lettering size in alphabets
M Presser foot pressure

General Functions

Information
- touch icon
- ► opens another Display

Back
- touch icon
- ► goes back to the previous Display
- ► all changes are saved

Confirm selection
- touch icon
- ► activates or confirms alteration/selection

Leaving the active Display
- touch icon
- ► closes Display
- ► shows the previous Display

Securing
- touch icon before sewing
- ► single stitch is secured at the begin with four securing stitches
- touch icon while sewing a single stitch
- ► the single stitch is secured at the end
- ► the sewing computer stops
- to program the securing function within a pattern combination
- each individual pattern of the combination can be secured at the start or the end

Pattern repeat
- touch icon 1x
- ► number 1 appears: the sewing computer stops at the end of an individual stitch or stitch combination
- touch icon 2-9x
- ► numbers 2-9 appear: the sewing computer stops at the end of a stitch or a stitch combination after the number of repeats selected

Upper thread tension
- change upper thread tension
- ► the respective value is visible in the icon

Needle position
- move the needle to the left or to the right using the arrow icons left/right or with the touch pen or with the finger
- keep arrow icon pressed
- ► quick movement of the needle
- ► the needle position is displayed in the yellow-framed icon
- touch yellow-framed icon
- ► moves the needle to the middle (Position 0)

Mirror image (Left/Right)
The sewing computer sews the stitch pattern horizontally mirrored, left/right referring to the sewing direction.

Altering pattern length
- move the round knob in the Display using the touch pen or the finger
- pattern length (Standard = 100%) is infinitely variable
- extend/shorten in 1%-steps with the arrow icons or
- touch «Pattern length»-icon
- pattern length is extended in 100%-steps

Maximum length is 200%, shortest length is 10%.

Security program
- touch icon
- touch «Needle»- or «Stitch plate»-icon

Overview Needle:
- touch desired «Needle»-icon
- stitch width is limited automatically
- this prevents the inserted special needle from hitting the presser foot and the stitch plate = no needle breakage
- numbers in the needle icons indicate the needle distance in mm
- touch «Standard needle»-icon
- Standard needle is activated again
- stitch width limitation is deactivated

Overview Stitch plates:
- touch the desired «Stitch plate»-icon
- stitch width is limited automatically
- this prevents the needle from hitting the presser foot and the stitch plate = no needle breakage

The function remains active even when the sewing computer is turned off and on.

Mirror image (Up/Down)
The sewing computer sews the stitch pattern vertically mirrored, up/down referring to the sewing direction.

Presser foot indicator
- touch icon
- shows recommended presser foot
- the active Display shows optional presser feet for the selected stitch pattern
- touch «Back»-icon
- the Display is closed

Permanent reverse sewing
The sewing computer sews the selected stitch pattern in permanent reverse.

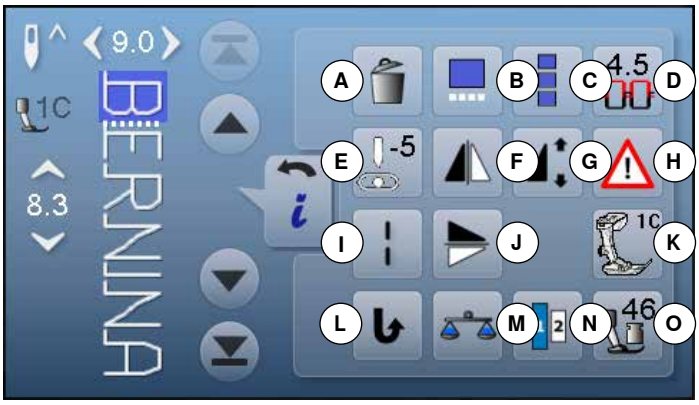
Balance
Balances forward and reverse stitches.

Lettering size in alphabets
- select alphabet
- letter size is 9mm
- touch icon
- activates number «2»
- the font size is reduced

Presser foot pressure
The presser foot pressure is set via the adjustment wheel on the left side of the headframe.
- the respective value is visible in the icon

Overview Functions Combi mode

- touch «Combi mode»-icon
- select stitch pattern
- touch «i»-icon



Combi mode

A Deleting
B Editing combinations at cursor position
C To edit the whole combination
D Upper thread tension
E Altering the needle position
F Mirror image (Left/Right)
G Altering the pattern length
H Security program
I Long stitch (without alphabets)
J Mirror image (Up/Down)
K Presser foot indicator
L Permanent reverse sewing
M Balance
N Lettering size in alphabets
O Presser foot pressure

General Functions

Information
- touch icon
- ► another Display is opened

Back
- touch icon
- ► goes back to the previous Display
- ► all changes are saved

Confirm selection
- touch icon
- ► activates/confirms the alteration/selection

Leaving the active Display
- touch icon
- ► closes Display
- ► goes back to the previous Display

Deleting
Deletes an individual stitch.

Editing a combination at cursor position
- touch icon
- ► the Display is opened

Editing the whole combination
- touch icon
- ► the Display is opened

Upper thread tension
- change upper thread tension
- ► the respective value is visible in the icon

Altering the needle position
- move the needle to the left or to the right touching the arrow icons left/right or using the touch pen or with the finger
- keep arrow icon pressed
- ► quick movement of the needle
- ► the yellow-framed icon shows the needle position
- touch yellow-framed icon
- ► moves the needle to the middle (Position 0)

Mirror image (Left/Right)
The sewing computer sews the stitch pattern horizontally mirrored, left/right referring to the sewing direction.

Altering pattern length
- move the round knob in the Display using the touch pen or the finger
- pattern length (Standard = 100%) is infinitely variable
- extend/shorten in 1%-steps with the arrow icons or
- touch «Pattern length»-icon
- pattern length is extended in 100%-steps

Maximum length is 1000%, shortest length 10%. Some stitch patterns are limited and cannot be extended to 1000%.

Security program
- touch icon
- touch «Needle»- or «Stitch plate»-icon

Overview Needles:
- touch the desired «Needle»-icon
- stitch width is limited automatically
- this prevents the inserted special needle from hitting the presser foot and the stitch plate = no needle breakage
- numbers in the needle icons indicate the needle distance in mm
- touch «Standard needle»-icon
- the Standard needle is activated again
- the stitch width limitation is deactivated

Overview Stitch plates:
- touch the desired «Stitch plate»-icon
- stitch width is limited automatically
- this prevents the inserted needle from hitting the presser foot and the stitch plate = no needle breakage

The function remains active even when the sewing computer is turned off and on.

Long stitch
- the sewing computer sews every **second** stitch (max. stitch length 10mm)
- applicable for practical and decorative stitches
- **Exception:** buttonholes, alphabets

Mirror image (Up/Down)
The sewing computer sews the stitch pattern vertically mirrored, up/down referring to the sewing direction.

Presser foot indicator
- touch icon
- shows the recommended presser foot
- the active Display shows the optional presser feet for the selected stitch
- touch the «Back»-icon
- the Display is closed

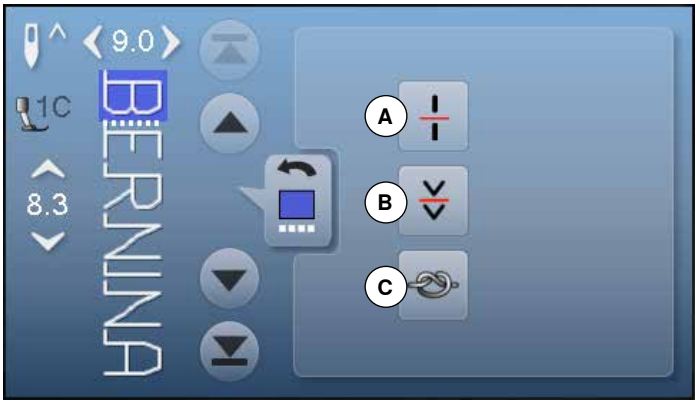
Permanent reverse sewing
The sewing computer sews the selected stitch pattern in permanent reverse.

Balance
Balances forward and reverse stitches.

Lettering size in alphabets
- select alphabet
- letter size is 9mm
- touch icon
- activates number «2»
- the font size is reduced

Presser foot pressure
The presser foot pressure is set via the adjustment wheel on the left side of the headframe.
- the respective value is visible in the icon

- touch «Combi mode»-icon
- select the stitch pattern
- touch «i»-icon
- touch «Cursor position»-icon



Functions
A Combination subdivider (1)
B Combination subdivider (2)
C Securing

General Functions

Information
- touch icon
- another Display is openend

Back
- touch icon
- goes back to the previous Display
- all changes are saved

Confirm selection
- touch icon
- activates/confirms alteration/selection

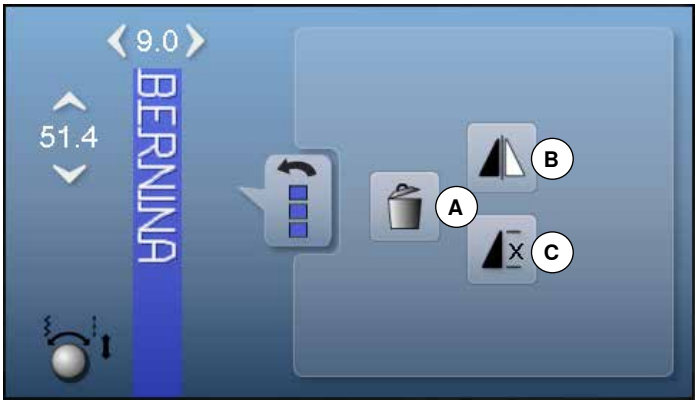
Leaving the active Display
- touch icon
- the Display is closed
- goes back to the previous Display

Combination subdivider (1)
– each combination or memory folder can be subdivided into several parts
– only those parts where the cursor is located will be sewn
– to sew another part, the cursor must be placed into this part

Combination subdivider (2)
– each combination can be interrupted as desired
– after stopping, the needle moves to the next part to be sewn

Securing
– program the function within a pattern combination
– each individual pattern of the combination can be secured at the start or the end

- touch «Combi mode»-icon
- select stitch pattern
- touch «i»-icon
- touch «Edit whole combination»-icon



Functions
A Deleting
B Mirror Image (Left/Right)
C Combination repeat

General Functions

Information
- touch icon
- another Display is opened

Back
- touch icon
- goes back to the previous Display
- all changes are saved

Confirm selection
- touch icon
- activates/confirms alteration/selection

Leaving the active Display
- touch icon
- the Display is closed
- goes back to the previous Display

Deleting
Deletes the whole combination.

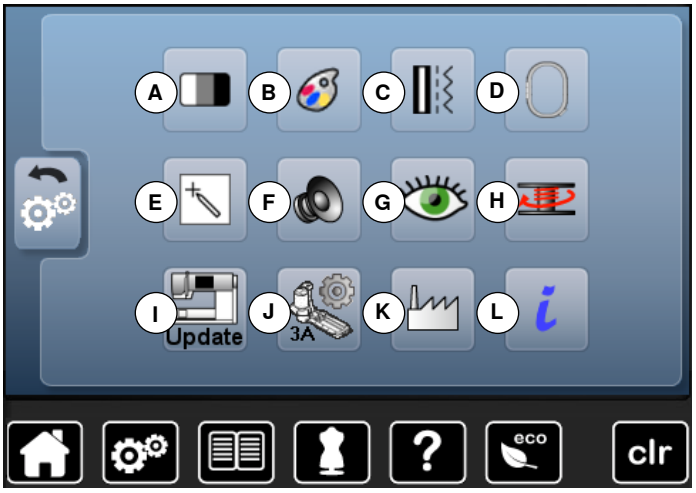
Mirror image (Left/Right)
The sewing computer sews the whole combination horizonally mirrored, left/right referring to the sewing direction.

Combination repeat
- touch icon 1x
- number 1 appears: the sewing computer stops at the end of a pattern combination
- touch icon 2-9x
- numbers 2-9 appear: the sewing computer stops at the end of a stitch combination after the number of repeats selected

Overview «Setup»-display

The Setup Program enables an individual adjustment of the Display surface and the settings according to your personal requirements.
After setting the sewing computer to your personal requirements, all changes made in the Setup Program are saved, even when the sewing computer is switched off.
Exceptions from this rule are outlined within the description of the function concerned in each case.

- touch «Setup Program»-button
- «Setup Program»-display is opened

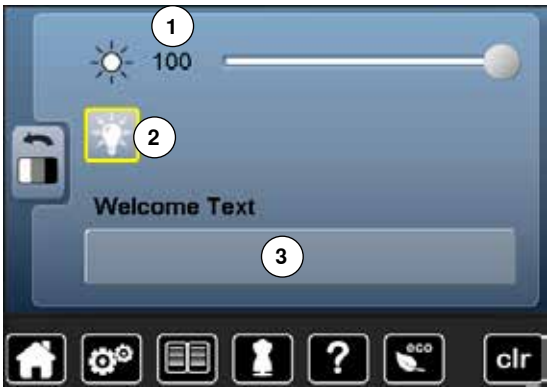


A Display settings
B Display color
C Sewing settings
D Embroidery settings
E Display calibration
F Audio System
G Monitoring
H Winding speed
I Update sewing computer
J Calibration buttonhole foot No. 3A
K Basic setting
L Information

Touch the yellow-framed icon to reset to basic setting.

Changing Display settings

- touch «Display setting»-icon



Brightness
- move the round knob in the Display to the left/right or
- turn the stitch width knob
- brightness **1** of the Display is changed
- alterations are visible in the yellow-framed icon
- a white line indicates the basic setting

Sewing light
- when icon **2** is active, the sewing light is on
- when icon **2** is inactive, the sewing light is off

Welcome text
- create or change Welcome Text **3**

The space button is below the keyboard.
- Welcome text **4** appears in the text icon above the letter keys
- touch «Text»-icon **4**
- the entered text is completely deleted

Corrections
- touch icon
- the entered text is deleted from the right to the left

5 «ABC» all in upper case (Standard)
6 «abc» all in lower case
7 «Ä À Á», «ä à á» and «@ #» upper and lower special characters
8 «1,2,3» numbers and mathematical characters

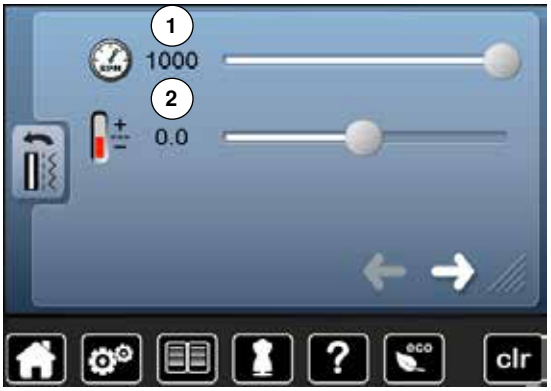
Selecting the Display color

- touch «Display color»-icon

- select the desired display color

Sewing settings

- touch «Sewing setting»-icon



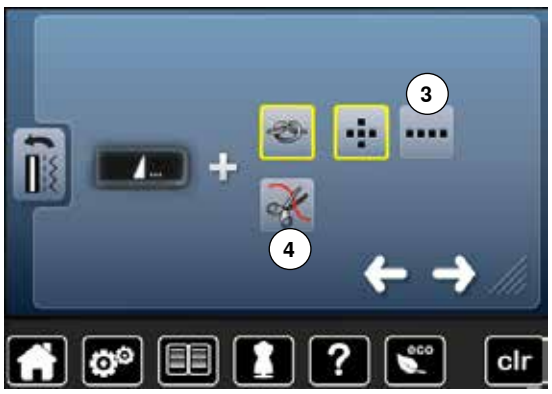
Sewing speed
- move the round knob in the Display to the left/right or
- turn the stitch width knob
- ► alters the maximal sewing speed **1**
- ► the number in the yellow-framed icon indicates the stitches per minute, the basic value is indicated by a white line

Altering the upper thread tension
- move the round knob in the Display to the left/right or
- turn the stitch length knob
- alters the basic setting of the upper thread tension **2** at plus or minus two basic values

0.0 = basic setting

The alteration of the upper thread tension affects any stitch patterns and embroidery motifs and is saved even when the sewing-/ embroidery computer is switched off.

- touch icon



Automatic securing program at pattern end
- – the number and type of the securing stitches of the **external** «Pattern end/ Securing»-button can be programmed
- – standard = four securing stitches in the same place
- select function **3** for forward securing stitches
- via the arrow icons three to six securing stitches can be programmed

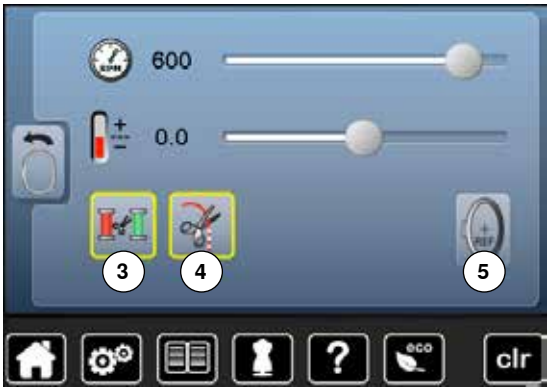
Automatic thread cutter
- ► if function **4** is activated, the upper and lower thread are automatically cut after sewing

- touch icon

Automatic thread cutter and securing stitches
– the number and type of the securing stitches before the thread is cut can be programmed
– standard = no securing stitches programmed
■ touch function **1** for securing stitches in place or function **2** for forward securing stitches
■ using the arrow icons two to six securing stitches can be programmed

Adjusting embroidery settings

■ touch «Embroidery settings»-icon



The settings for embroidery speed and the upper thread tension can be adjusted in the same way like the settings for sewing. (see page **42**)
■ touch icon **3**
► when changing the thread color the automatic cut of the thread is activated or deactivated
■ touch icon **4**
■ to turn automatic thread cutter on or off
■ touch icon **5**
■ to calibrate the hoop

Calibrating the hoop
The hoop calibration adjusts the needle to the center of the hoop. Adjustments can only be done if the embroidery module and the oval hoop are attached. This procedure has to be done only once as it is the same for all hoop sizes.

■ place embroidery template into the embroidery hoop
■ start the adjustment by pressing ✔
► the hoop is checked and the needle positioned to the center
■ if the needle is **not** positioned exactly in the center of the embroidery template, it has to be centered by using the arrow icons
■ confirm with ✔
► the adjustment is saved

Place the fabric in the embroidery hoop. The embroidery template is located well in the hoop.

Calibrating the Display

The Display calibration can be opened as follows:
- turn off the sewing-/embroidery computer
- touch the two needle positioning buttons on the front panel and keep them pressed
- turn on the sewing-/embroidery computer and release the buttons as soon as the Display appears

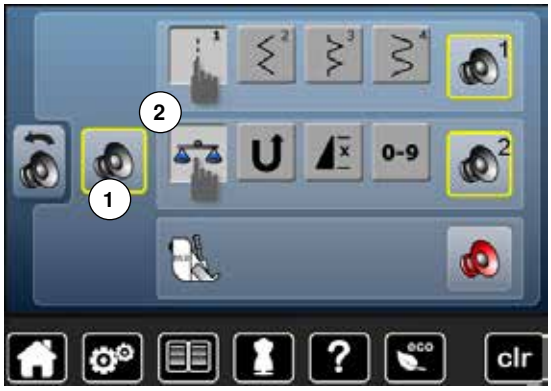
- touch «Display calibration»-icon

- touch the calibration icon

- touch the center of the cross using the touch pen
- ► the cross moves to the next position
- repeat this until all three positions shown are calibrated
- ► the Display is closed
- ► the calibration is saved

Altering the acoustic signals

- touch «Acoustic signal»-icon



By touching **1** the signals are activated or deactivated.

Selecting Stitch Pattern/Function/BSR
Stitch patterns and function selection **2** can be confirmed acoustically.
- touch the icon with the loudpeakers for the stitch patterns until you hear the desired sound

There are six different sounds to choose from.
- ► the sound is indicated by a number (1-6)
- the sounds for the functions (center) and the sound for quilting with the BSR (below) can be activated or deactivated in the same way
- ► the deactivation is indicated as last option when scrolling through the different sounds

Monitoring

- touch «Monitoring»-icon

The following monitoring functions can be activated or deactivated:
1 Upper thread indicator
2 Lower thread indicator

Upper-/Lower thread indicator
- ► open eye = function active
- touch «Open eye»-icon
- ► closed eye = function inactive

The sound type for the monitoring functions is set in the audio settings for functions.

Altering the winding speed

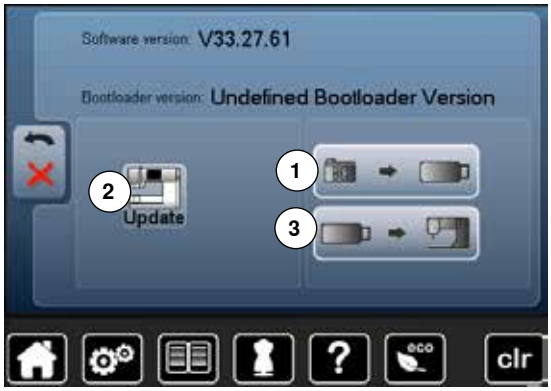
- touch «Winding speed»-icon

- move round knob in the Display to the left/right or
- turn the stitch width knob
- ► the winding speed is changed

Update

Do not remove the BERNINA USB stick until there is a message which indicates the end of the update.

- insert BERNINA USB stick with the new software version
- touch «Update»-icon



It is recommended to save the data and the settings of the sewing computer before the update is carried out.

- touch icon **1**
- the data of the sewing computer is saved on the USB stick
- touch «Update»-icon **2** to start the procedure

It is then checked if:

- ► a BERNINA USB stick is inserted
- ► there is enough free space available
- ► the correct software version is on the stick

► the data and settings are accepted

After the successful update a message appears and sewing-/embroidery computer is ready for use.

► if the update cannot be started or if there are problems during the update process, an error message appears

If the data and the settings aren't on the sewing computer anymore after the update:

- touch icon **3**

► the data on the stick are saved on the sewing computer

Please find the latest version of Software at www.bernina.com

Calibrating buttonhole foot No. 3A

- touch «Calibration»-icon

- attach buttonhole foot No. 3A
- lower buttonhole foot No. 3A
- touch «Start/Stop»-button

► the buttonhole foot No. 3A moves forward and backwards

► the buttonhole foot No. 3A is calibrated and the sewing computer indicates whether the calibration has been successful

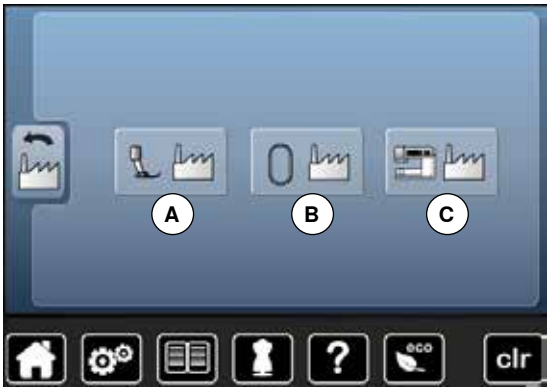
The buttonhole foot No. 3A is calibrated to this sewing computer and should only be used on this sewing computer.

Reset/Delete user data

- touch «Basic settings»-icon

Choose from following options:
1 Reset Settings
2 Delete user data

Reset settings
- touch icon **1**



Choose from following options:
A Reset Sewing
B Reset Embroidery
C Reset All

- touch the icon, whose settings should be reset to basic setting
- confirm with ✔
- ► the previous Display appears
- touch «Back»-icon
- ► selection menu appears

Exceptions:
Thread tension, brilliance, brightness, display color and speed need to be reset to basic state knowingly according to the corresponding function.

Delete user data
- touch icon **2**

Choose from following options:
D Sewing «Personal program»
E Embroidery «My Designs»
F Embroidery «Memory stick» (the Memory stick must be inserted in the sewing computer)

- touch the icon, whose data should be deleted
- confirm with ✔
- ► the data is deleted and the previous Display appears
- touch «Back»-icon
- ► selection menu appears

Information

- touch «i»-icon

Language

- scroll through the languages by touching the arrow icons and select the language required

- touch icon

Version

- the present version of the sewing computer and the attached embroidery module are visible
- the total number of stitches and the number of stitches sewn since the last servicing by the dealer are displayed

- touch icon

Dealer details

- touch respective icon

Following details of the BERNINA-dealer can be registered:

- store name
- address
- telephone number
- website or e-mail address

- touch icon

Service data

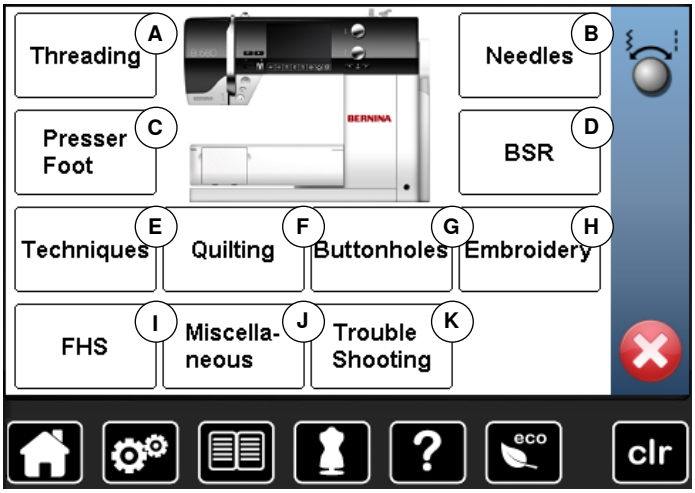
The service data of the present condition of the sewing-/embroidery computer can be saved on a memory stick and sent to the BERNINA-dealer:

- insert memory stick to sewing-/embroidery computer
- touch «LOG»-icon
  - data is saved on the memory stick
- remove memory stick

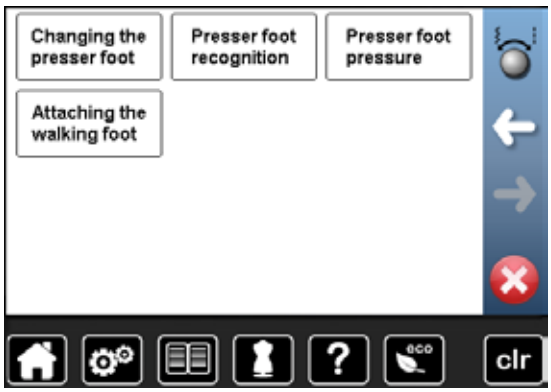
Overview Tutorial

The tutorial provides information and explanations about the different areas of sewing and embroidering.

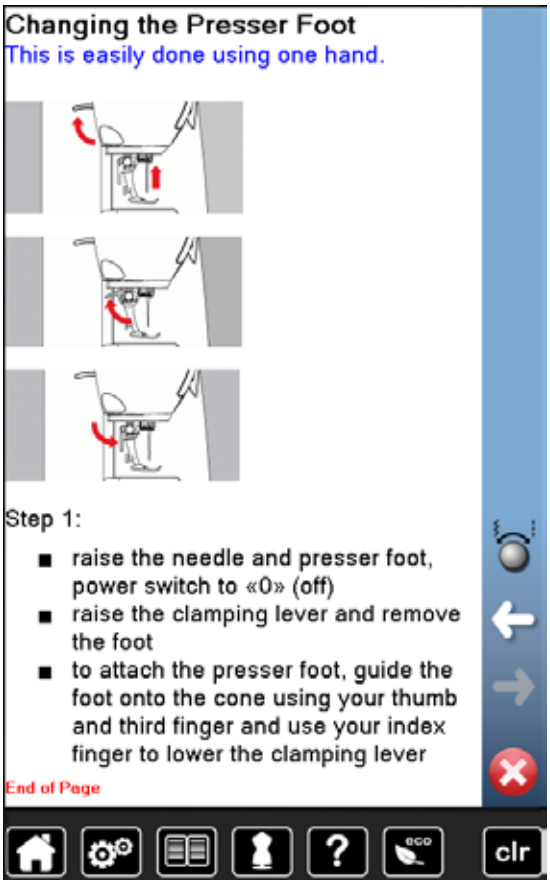
- touch «Tutorial»-button
- ► «Tutorial»-display appears



A Threading
B Needles
C Presser foot
D BSR
E Sewing techniques
F Quilting
G Buttonholes
H Embroidery
I Free Hand System (FHS)
J Miscellaneous
K Troubleshooting



- select desired topic, e.g. presser foot
- ► topic overview about the presser foot appears
- select desired topic, e.g. changing the presser foot


Changing the Presser Foot
This is easily done using one hand.
Step 1:
raise the needle and presser foot, power switch to «0» (off)
raise the clamping lever and remove the foot
to attach the presser foot, guide the foot onto the cone using your thumb and third finger and use your index finger to lower the clamping lever
End of Page
clr

- ► information on the desired topic is shown
- ■ scroll through the topics using the knobs, the finger or the touch pen

- ■ touch «Next»
- ► the next page appears

- ■ touch «Back»
- ► the previous page appears

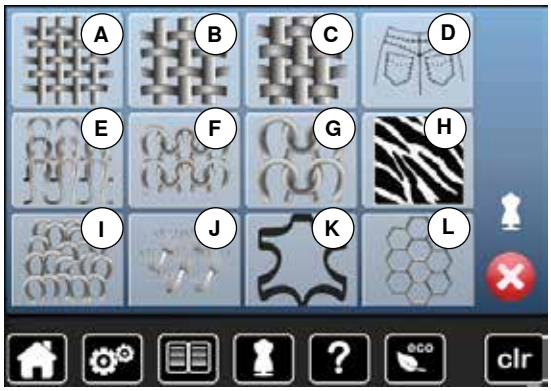
- ■ touch ✕ and the «Tutorial»-display closes
- ► the previous Display appears

Overview Creative consultant

The creative consultant provides information and help with various sewing techniques. After selecting the fabric and the desired sewing technique suggestions for suitable needles, presser feet etc. are displayed.

► upper thread tension is automatically adjusted

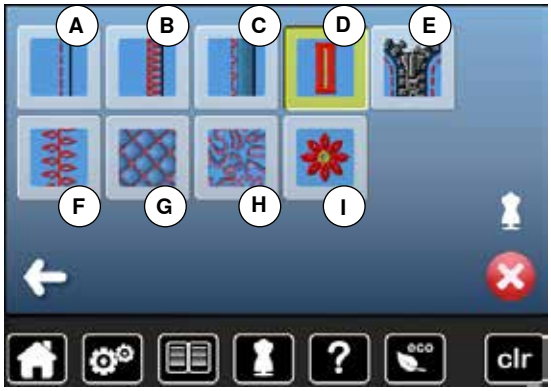
■ touch «Creative consultant»-button
► «Creative consultant»-display appears



A Light weight woven
B Medium weight woven
C Heavy weight woven
D Jeans
E Light weight knit
F Medium weight knit
G Heavy weight knit
H Fur
I Toweling
J Fabric with a pile
K Leather and Vinyl
L Tulle and Laces

Overview Sewing techniques

■ touch icon of the desired material, e.g. light weight woven



The optional sewing techniques are displayed.
A Seams
B Overcasting
C Blind hem
D Buttonhole
E Zipper
F Decorative stitching
G Machine quilting
H Free-motion stitching
I Appliqué

■ select the desired sewing technique, e.g. buttonhole

If the desired sewing technique is not in the list, choose a similar sewing technique.

► recommendations for the selected material and the desired sewing technique is displayed
■ confirm with ✓
► display with the programmed stitch patterns appears

Leaving the sewing consultant

■ touch ✕

Help program

The Help program provides information about individual stitch patterns and function icons in the Display.

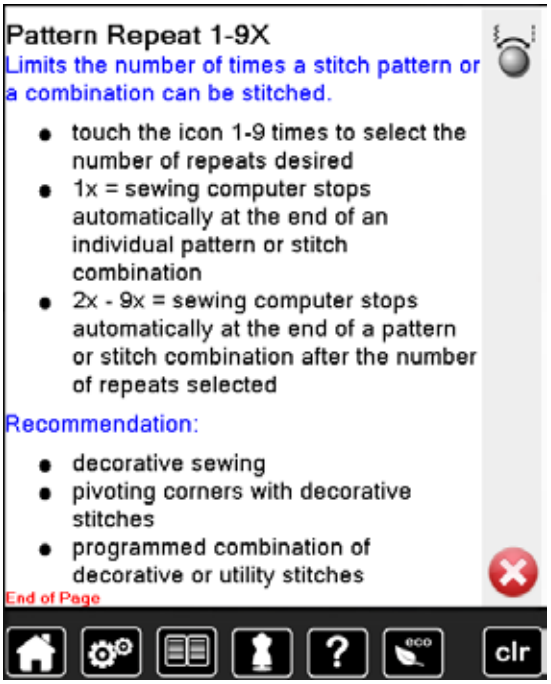
Stitch patterns

- touch «Help program»-button
- select the desired stitch pattern or the desired function

Blind stitch
Select for most types of fabric for blind hems, shell edging on soft jerseys and fine fabrics.
Recommendation:
adjust stitch width to suit fabric thickness if necessary for medium and firm fabrics
End of Page
clr

The Display shows the following information:
- stitch pattern name
- suitable materials
- recommendation

Functions


Pattern Repeat 1-9X
Limits the number of times a stitch pattern or a combination can be stitched.
touch the icon 1-9 times to select the number of repeats desired
1x = sewing computer stops automatically at the end of an individual pattern or stitch combination
2x - 9x = sewing computer stops automatically at the end of a pattern or stitch combination after the number of repeats selected
Recommendation:
decorative sewing
pivoting corners with decorative stitches
programmed combination of decorative or utility stitches
End of Page
clr

The Display shows the following information:
- function name
- function explanation
- recommendation

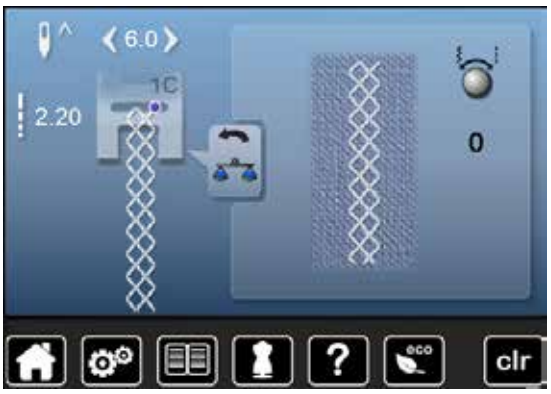
- touch ✕
- the Help program is closed
- the previous Display appears

Balance

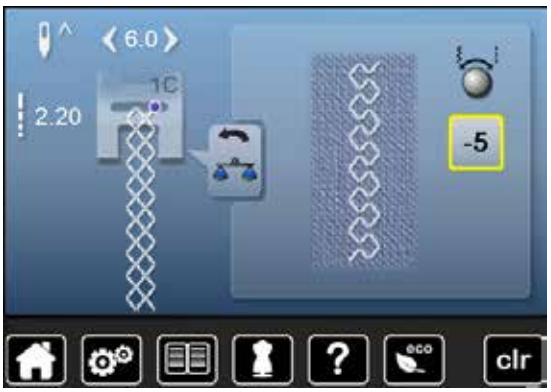
The sewing computer is tested and optimally set before it leaves the BERNINA factory. Different fabrics, threads and stabilizers can affect programmed stitches so that they are not sewn out properly. These effects can be corrected with the electronic Balance so that the stitch formation can be adjusted where necessary to suit the material.

Practical and decorative stitches

- touch «i»-icon
- touch «Balance»-icon



- in the left part of the Display the stitch pattern is shown as it is set originally (programmed)
- in the right part of the Display any alterations are directly visible



Corrections

The stitch sewn on the fabric (e.g. the Honeycomb stitch) opens up and it does not look correct:

- adjust the stitch length by turning the stitch width or stitch length knob, until the stitch in the right part of the Display is identical with the stitch on the fabric
- the alteration is shown with a number in the yellow-framed icon
- touch «Back»-icon 2x
- alterations are saved
- the previous Display appears

Reset settings

- touch «i»-icon
- touch yellow-framed «Balance»-icon
- touch yellow-framed icon
- basic setting is reset

eco description

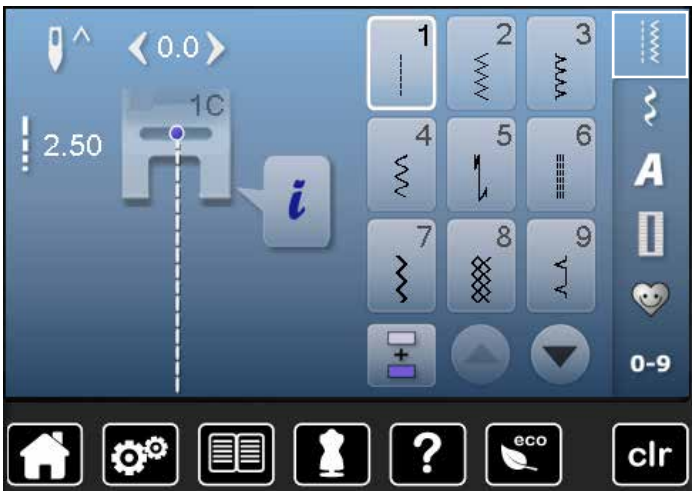
When work is interrupted for longer periods, the sewing-/embroidery computer can be put into energy-saving mode.

- touch «eco»-button
  - the Display gets dark
  - power consumption is reduced and the sewing light turned off

The energy-saving mode also acts as a child safety feature. The Display is inactive and the sewing-/embroidery computer cannot be started.

- touch «eco»-button
  - the sewing-/embroidery computer is ready for use

Overview Practical stitches



- touch «Practical stitch»-button
- the practical stitches are visible in the Display
- further practical stitches are visible by scrolling

1 Straight stitch
For non-elastic materials; all straight stitch work, such as seams, topstitching, sewing zippers

2 Zig-zag
Zig-zag work such as overcasting edges, attaching elastic and lace

3 Vari-Overlock
For fine jerseys; stretch overlock seams, hems and stretch seams

4 Running stitch
Most types of fabric; Mending, patching, reinforcing seams, etc.

5 Securing program
For all materials; secures the beginning and end of seams by straight stitching

6 Triple straight stitch
Reinforced seams in heavy fabrics, visible hems and seams

7 Triple zig-zag
Reinforced seams in heavy fabrics; visible hems and seams

8 Honeycomb stitch
For all types of jersey and smooth materials; visible seams in lingerie, clothing, linen, mending etc.

9 Blind stitch
For most types of materials; Blind hems; shell edging effect on soft jerseys and fine material; decorative seams

10 Double-Overlock
For any knit materials; overlock seam = sewing and finishing in one step

11 Super stretch stitch
For highly elastic fabrics; Highly elastic open seam for all types of clothing

12 Gathering stitch
Most types of fabric; Gathering with shirring elastic. Butted seams = butting two pressed edges and sewing together, decorative stitches

13 Stretch-Overlock
For medium weight knits, toweling and firm woven; Overlock seams, flat joining seams

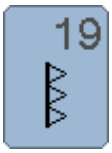
14 Tricotstich
For jersey materials; visible hems, visible seams in lingerie, sweaters, mending jersey

15 Universal stitch
For firm fabrics such as felt and leather; flat joining seams, visible seams, attaching elastic, decorative seams

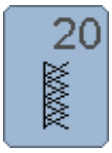
16 Sewn out zig-zag
Edge finishing and reinforcing, attaching elastic, decorative seam

Lycra stitch
All two-way stretch fabrics; flat joining seams and hems, reinforced seaming on underwear

Stretch stitch
For highly elastic fabrics; open seam for sportswear



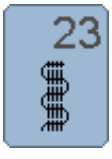
Reinforced Overlock
For medium-weight knitware and toweling; overlock seams, flat joining seams



Knit Overlock
For knit material, hand- and machine made items; overlock seam = sewing and finishing in one step

Basting stitch
Basting seams, hems, etc. temporarily

Simple darning program
Automatic darning of fine to medium weight materials

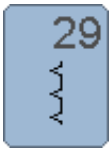


Reinforced darning program
Automatic darning of firm materials

Bartack program
Reinforcing pocket openings, sewing belt loops etc.

Bartack program
Reinforcing pocket openings, sewing on belt loops, securing zippers and seam ends

Large fly stitch
For medium weight to thick materials; reinforcing pocket openings, zippers and slits



Blindstitch narrow
For blind hems in fine materials

Triple Straight Stitch with Long stitch
Reinforced seams in heavy fabrics, visible seams and topstitching

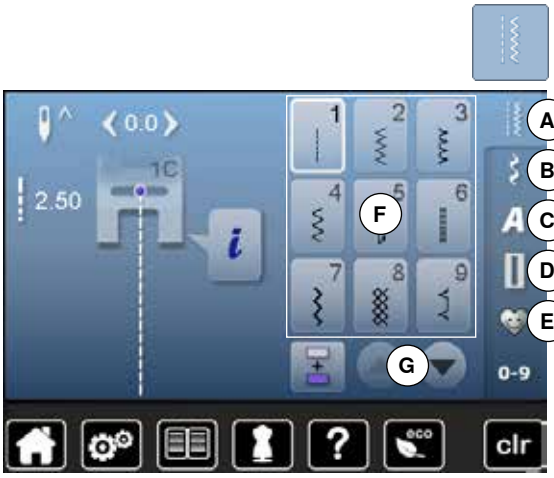
Single straight stitch
As a connecting stitch between two individual decorative stitch patterns in a combination

Three single straight stitches
As a connecting stitch between two individual decorative stitch patterns in a combination

Darning stitch
Use for darning in conjunction with the «Permanent Reverse» function

Stitch pattern selection

Direct

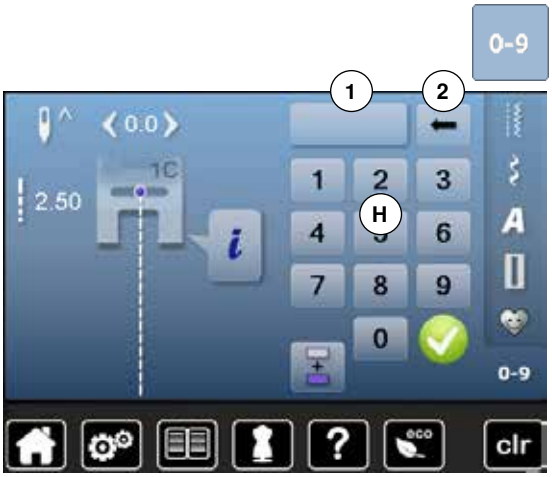


- select the desired main category **A-E**

A Practical stitches
B Decorative stitches
C Alphabets
D Buttonholes
E Personal program/Memory

- the available stitch patterns are visible in the Display portion **F**
- select desired stitch pattern
- further stitch patterns are visible when scrolling **G**

By stitch number



- touch «0-9»-button

- numbers for entering are visible in the Display portion **H**
- enter stitch number
- the entered stitch number **1** appears
- touch icon **2**
- last digit is deleted
- touch icon **1**
- complete number is deleted
- confirm with ✔

Cancelling

- touch «0-9»-button
- the previous Display appears

An invalid stitch number will be indicated in icon **1** with 3 question marks.

Customizing stitch pattern individually

According to material and purpose a stitch pattern can be altered individually. The alterations described here are applicable for all practical and many decorative stitches.

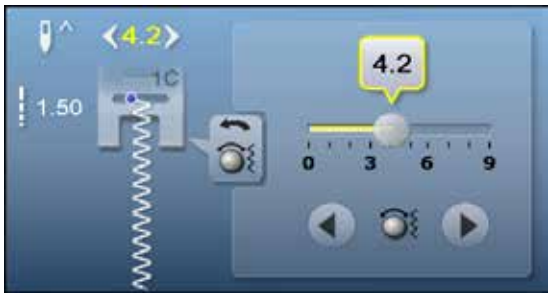
The personal memory is unlimited; it can hold as many stitch alterations as needed:
- Stitch length
- Stitch width
- Needle position
- Pattern Extend
- Mirror images
- Long Stitch function
- Thread tension
- Balance
- Pattern repeat 1-9x

Temporary altered stitch memory

Any altered stitch width and stitch length is automatically saved.

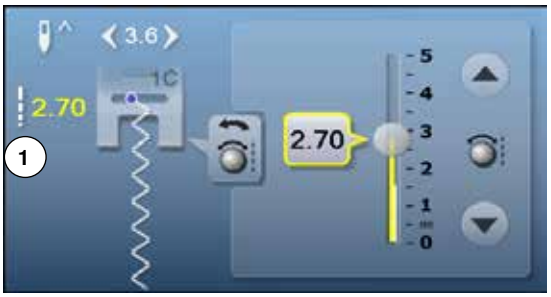
Example:
- sew with an altered stitch (e.g. zig-zag)
- select and sew another stitch, e.g. straight stitch
- return to zig-zag, your alterations are still active

Return to basic settings
Individual stitch patterns can be reverted to basic settings manually.
- touch stitch width/stitch length icon and in the respective Display the yellow-framed icon or
- press the «clr»-button
- ► any altered values of the **active** stitch return to basic setting
- switch off the sewing computer
- ► any alterations of all stitches are deleted

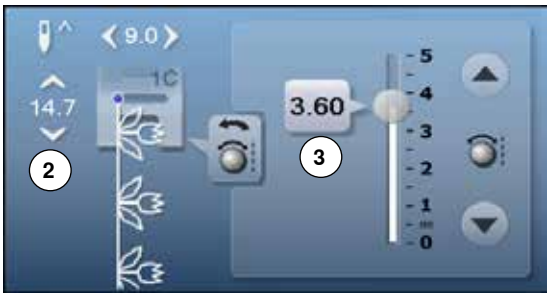


Altering stitch width and stitch length
- turn the knobs or
- touch stitch width or stitch length Display
- touch the arrow icons in the respective Display or
- move the round knob in the Display using the touch pen or the finger

Can be altered while sewing.



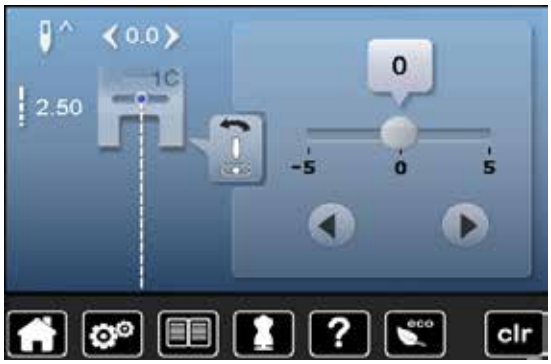
When sewing practical or quilting stitches the actual stitch length **1** is displayed.



With other stitch patterns the overall length of a stitch pattern **2** is displayed.
The actual stitch length **3** is visible when the stitch length Display is opened.

Altering needle position
- touch «Moving»-buttons for needle position or

- touch «i»-icon
- touch «Needle position»-icon



- keep «Moving»-buttons or arrow icons pressed
- ► quick movement of the needle
- move the bar in the Display using the touch pen or the finger

11 needle positions in total (5 left, 5 right, 1 center).

Examples of application

Straight stitch

Reverse pattern foot No. 1C

Straight stitch No. 1

After turning on the sewing computer the straight stitch will appear.
- the needle is up

Application
Suitable for all fabrics.

Adjust the stitch length to suit the fabric
E. g. use a longer stitch length (approximately 3-4mm) with denim, a shorter length with fine fabirc (approx. 2-2.5mm).

Adjust the stitch length to suit the thread
E. g. use a longer stitch length thread when using cordonnet thread for topstitching (approx. 3-5mm).

Activate needle stop down
Prevents the fabric from shifting when you adjust or pivot the sewing project.

Triple straight stitch

Reverse pattern foot No. 1C
Jeans foot No. 8

Triple straight stitch No. 6

Open seam
Durable seam for firm or dense materials such as denim and corduroy.

For firm or densely woven materials
A Jeans needle and Jeans foot No. 8 will help when sewing denim or canvas.

Decorative top stitch
Lengthen stitch and use the triple straight stitch for decorative topstitching.

Triple Zig-Zag

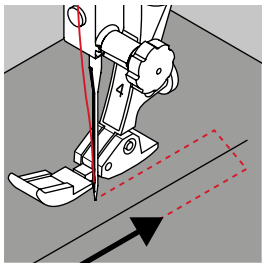
Reverse pattern foot No. 1C

Triple zig-zag No. 7

In firm materials, particularly for denim, deckchair covers, awnings.

Seams on often washed items. Finish raw edges first. Use Jeans needle for very firm materials.

Zipper

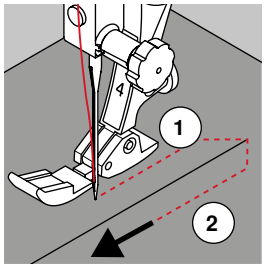


Zipper foot No. 4

Straight stitch No. 1

Preparation
- close seam to the zipper beginning
- sew securing stitches
- baste seam closed and clean
- finish the seam allowance
- iron the seam
- open the zipper
- baste the zipper: baste or pin zipper in place so that fabric folded edges meet over the center of the zipper

Sewing in the zipper
- open zipper a little
- move needle position to the right
- start sewing from top left
- position the foot so the needle stitches along the edge of the zipper coils
- stop in front of the pull (needle position down)
- raise the presser foot
- close the zipper again
- lower the presser foot
- continue to sew, stop in front of the base of the zipper, needle position down
- raise the presser foot
- turn the sewing project
- lower the presser foot
- sew across the seam, stop with needle position down
- raise the presser foot
- turn sewing project again
- lower the presser foot
- sew the second side from bottom to top



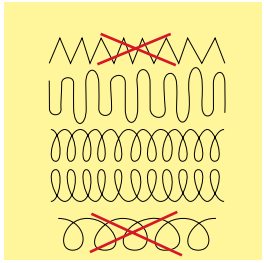
Variation: Sew both sides of zipper from bottom to top
Suitable for all fabrics with nap or grain (e.g. velvet).
- prepare zipper as described above
- start sewing in the seam of the zipper end and sew first side from bottom to top
- sew diagonal along the edge of the zipper coils
- first side **1** sew from bottom to top
- move needle position to the left
- second side **2** sew in the same way from bottom to top

Sew around the zipper pull
– sew up to about 5cm away from the zipper pull
– stop with the needle down, raise the presser foot, open the zipper, lower the presser foot, finsih sewing (use Free Hand System)

Seam begin
– hold thread firmly when starting to sew = pull fabric slightly to the back (fewer stitches) or
– sew about 1-2cm reverse first, and continue to sew as usual

Zipper or fabric is thick or densely woven
For even stitch formation use a 90-100 needle.

Manual darning



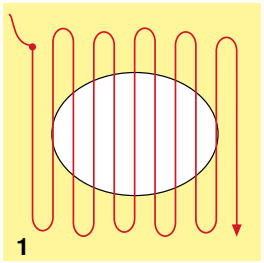
Darning foot No. 9 (optional accessory)

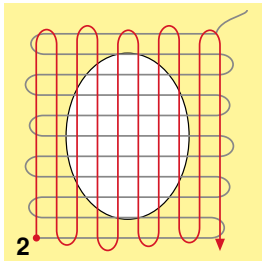
Straight stitch No. 1

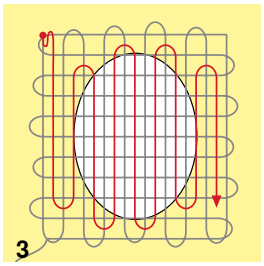
Holes or worn areas
«Replacing» threads along the lengthside and crosswise in every material.

Preparation
- lower the feed dog
- attach the Slide-on table
- hoop the fabric into the darning hoop (optional accessory)
- ► the darning area stays evenly taut and cannot be distorted

Sewing
– work from the left to the right, guide the fabric evenly without using pressure
– move in curves when changing direction on top and on bottom. Avoid points as this can cause holes and thread breakage
– sew different length. The thread is better spread over the fabric







1 Sew the first rows to cover the hole
- first rows just beyond the worn area and not too close together
- work the rows in irregular lengths
- turn work by a quarter turn -90°

2 Sew over the first rows
- first rows not too close
- turn fabric by half turn -180°

3 Finish darning the hole
- sew another loose row

Poor stitch formation
– if the thread is lying on top, slow down the fabric movement
– if there are knots on the wrong side of the fabric, move the fabric more quickly

Thread breaks
Guide the fabric more consistently.

Automatic darning

Reverse pattern foot No. 1C
Buttonhole foot No. 3A

Simple darning program No. 22

Quick darning of holes or worn areas
Replaces threads along the lengthwise grain in all materials.

Preparation
- hoop light weight materials in the darning hoop (optional accessory)
- ► the darning area stays evenly taut and cannot be distorted

Darning with reverse pattern foot No. 1C
- insert the needle in the top left of the worn area
- sew first row
- stop sewing computer
- press «Quick reverse»-button
- ► the length is programmed
- finish sewing the darning program
- ► the sewing computer stops automatically
- press the «clr»-button
- ► the program is cleared

Darning with the buttonhole foot No. 3A
– for darning worn and damaged areas
– darning length max. 3cm
– same procedure as with Reverse pattern foot No. 1C

Reinforcement
Use fine material or (adhesive) interlining as a backing.

If the darning becomes distorted
Correct with the Balance function (more about Balance-Function see page **54**).

Reinforced darning, automatic

Buttonhole foot No. 3A

Reinforced darning program No. 23

Quick darning of holes or worn areas
Replaces threads along the lengthwise grain in all materials.

Preparation
- hoop light weight materials in the darning hoop (optional accessory)
- ► the darning area stays evenly taut and cannot be distorted

Darning with the buttonhole foot No. 3A
Insert the needle in the top left of the worn area.
- sew first row
- press «Quick reverse»-button
- ► the length is programmed
- finish sewing the darning program
- ► the sewing computer stops automatically
- press the «clr»-button
- ► the programmed settings are cleared

If the darning does not cover the whole worn or damaged area
Reposition the work under the foot to continue covering the worn or damaged area. Begin sewing; the program will repeat as often as desired (the length is saved).

Per «Direct entry length» (see page **32**) a darning length up to 30mm can be programmed.

Finishing edges

Reverse pattern foot No. 1C

Zig-zag No. 2

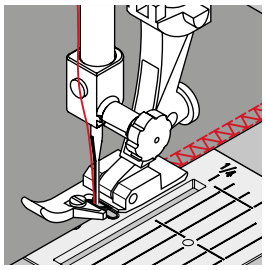
– for all fabrics
– for finishing raw edges
– elastic seams
– decorative sewing

Finishing edges
- guide edge of fabric into the center of the presser foot
- do not select too wide a stitch
- do not select too long a stitch
- needle goes into fabric on one side and over the edge into the air on the other side
– the edge of the fabric should lie flat and not roll
– use darning thread for fine materials

Satin stitch
– dense, short zig-zag (stitch length 0.5-0.7mm)
– use satin stitch for appliqué, embroidery, etc

As a variation the satin stitch No. 1354 can be used.

Double-Overlock



Overlock foot No. 2A
Reverse pattern foot No. 1C

Double overlock No. 10

Closed seam
Double overlock seam in loose knits and cross seams in knits and jerseys.

Sewing
- guide the pin of the Overlook foot along the cut edge

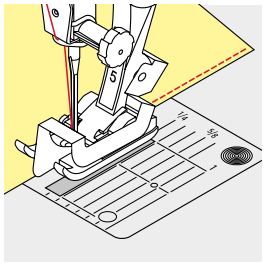
Knits and jersey
– use a new Jersey needle to prevent damaging the loops
– if necessary loosen presser foot pressure

Sewing stretch materials
If necessary use a stretch needle (130/705H-S).

Top stitching edges

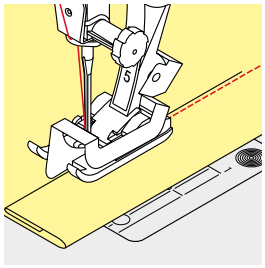
Blindstitch foot No. 5
Reverse pattern foot No. 1C
Edge stitch foot No. 10 (optional accessory)

Straight stitch No. 1



Narrow edgestitching

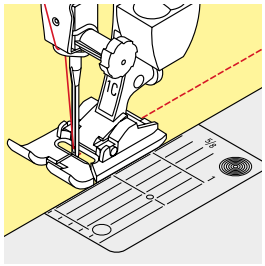
Outer edges
- place edge of fold left against the guide on the blindstitch foot
- select the needle position left in the desired distance to the edge



Hem edges
- place edge of fold (inside upper edge of hem) right against the guide on the blindstitch foot
- select needle position to the right to sew along the upper edge

Blindstitch foot No. 5
Needle position left or far right.

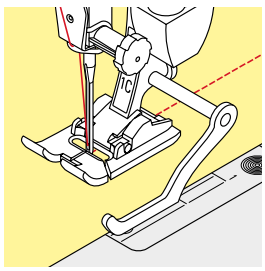
Reverse pattern foot No. 1C and edge stitch foot No. 10 (optional accessory)
Any needle position possible.



Wide edgestitching

Material guidance
Presser foot as guide:
- guide the folded edge along the edge of the presser foot

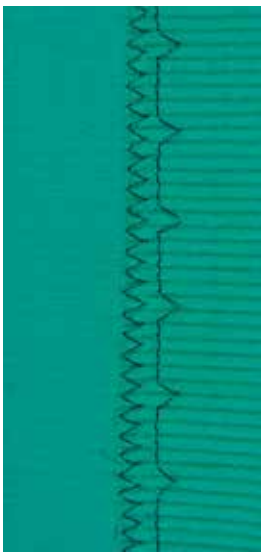
Stitch plate as guide:
- guide the folded edge along the marks on the stitch plate (1 to 2.5cm)



Seam guide as guide:
Presser foot
- loosen the screw on the back of the presser foot
- insert the seam guide into the hole of the presser foot
- adjust width as desired
- tighten the screw
- guide the folded edge along the seam guide

To sew parallel wider lines, guide the seam guide along a previously sewn line of stitches.

Blind hem

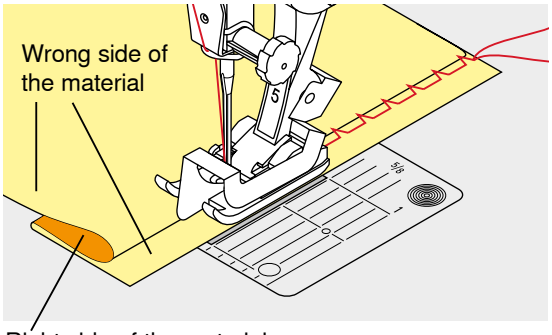


Blindstitch foot No. 5

Blindstitch No. 9

For invisible hems in medium to heavy weight cotton, wool and blended materials.

Preparation
- finish the raw edges
- fold the hem and baste or pin in place



Right side of the material

- fold the fabric back over the right side of the fabric to expose the finished lower edge
- place under presser foot and
- move the folded edge against the metal guide on the presser foot

Sewing

The needle should just pierce the edge of the fold, as when hand blind-stitching.
- after sewing about 10cm, check both sides of fabric and adjust width again if necessary

Fine stitch width adjustment
Guide the folded edge evenly along the metal guide on the foot = even depth.

Visible hem

Reverse pattern foot No. 1C

Tricot stitch No. 14

For visible, elastic hems in jersey, cotton, synthetic and mixed fibers.

Preparation
- iron the hem, baste if necessary
- reduce the presser foot pressure if necessary

Sewing
- sew the hem at preferred depth on the right side
- trim excess fabric from the wrong side

Securing program

Reverse pattern foot No. 1C

Securing program No. 5

– for all fabrics
– secures beginning and end of seam

Sewing long seams with straight stitch
Even securing by defined stitch count.

Beginning to sew
- press the foot control
- the sewing computer secures automatically when beginning to sew (5 stitches forward, 5 stitches in reverse)
- sew seam with straight stitches in desired length

Ending the seam
- press «Quick reverse»-button
- the sewing computer secures seam automatically (5 stitches in reverse, 5 stitches forward)
- the sewing computer stops automatically at the end of the securing program

Basting stitch

Reverse pattern foot No. 1C

Basting stitch No. 21

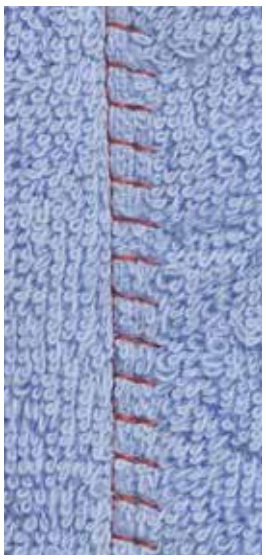
– straight stitch, sews out every fourth stitch, i.e. longest stitch possible is 20mm, when the stitch length is set at 5mm. Recommended stitch length 3.5-5mm
– for work which requires a very long stitch
– basting seams, hems, Quilts etc.
– temporary joining
– easy to remove

Preparation
- pin work at a right angle to basting direction
- to prevent the layers from slipping

Securing/fixing the thread
Sew 3-4 securing stitches at the begin and at the end.

Thread
Use a fine darning thread for basting as it is easier to remove.

Flat joining seam



TTTTT

Reverse pattern foot No. 1C

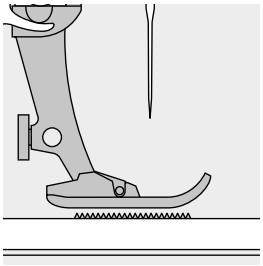
Stretch-overlock No. 13

Ideal for fluffy or thick materials such as terry cloth, felt and leather etc.

Sewing

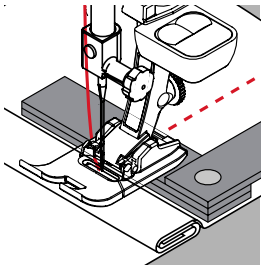
- overlap fabric edges
- sew along the fabric edge
- the stitch should sew over the edge of the top layer on the right side
- ► very flat durable seam

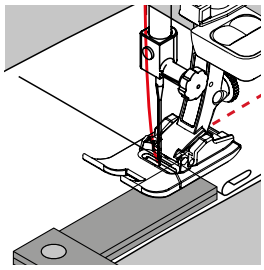
Height compensation of uneven layers



The feed dog works accurately when the foot is level.

If the foot is at an angle, e.g. when sewing over thick to thin or vice-versa, the feed dog cannot grip and feed the fabric. The fabric might jam.



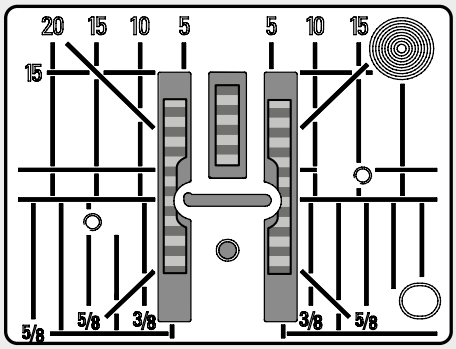


To solve this problem, place one, two or three compensating plates as required behind the needle under the presser foot to level it.

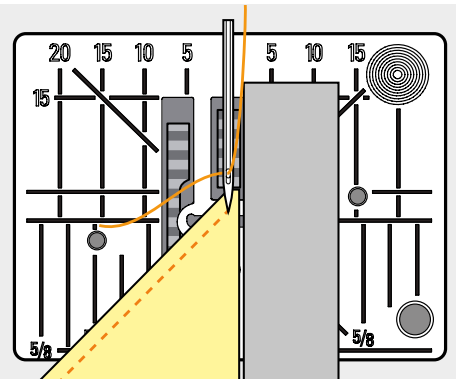
To correct the height in front of the foot, place one or more plates under the foot close to the needle. Sew until the foot is level again and remove the plates.

Needle stop down.

Sewing corners



Due to the width of the stitch plate hole the outer feed dog rows are relatively far apart.



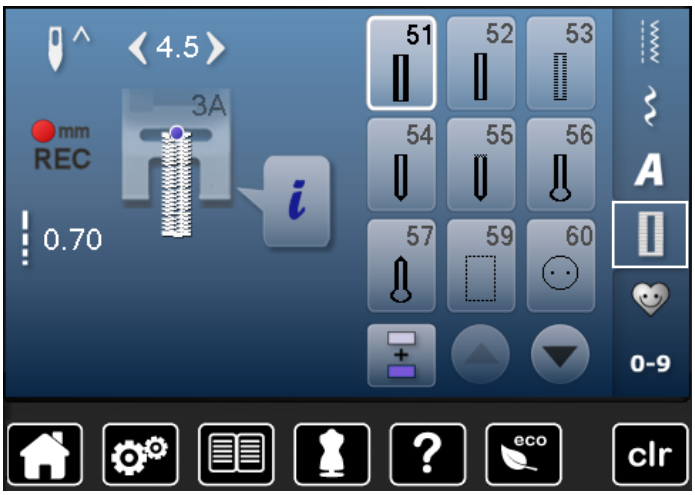
When sewing corners only a small section of the fabric is actually on the feed dog. Therefore it cannot grip the fabric well.
Place one or more plates of the height compensation tool parallel to the presser foot close to the edge of the fabric.

- the fabric is fed evenly

Needle stop down.

Notes

Overview Buttonhole



Buttonholes are not only practical closures, they can also be used as a decorative effect. All buttonholes can be programmed and sewn in different ways.

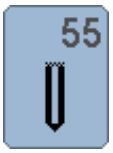
- touch «Buttonhole»-button
- scroll to see more buttonholes

Standard buttonhole
For light to medium weight fabrics; blouses, shirts, trousers, bedlinens, etc.

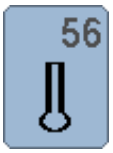
Narrow buttonhole
For light- to medium weight fabrics; blouses, dresses, children's and baby clothes, crafts

Stretch buttonhole
For any highly elastic jersey made from cotton, wool, silk and synthetic fibers

Round buttonhole with normal bartack
For medium- to heavy weight materials: dresses, jackets, coats, rainwear

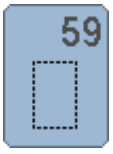


Round Buttonhole with horizontal bartack
For medium- to heavy weight fabrics of all types: dresses, jackets, coats, rainwear

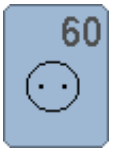


Keyhole buttonhole
For heavy weight, non-stretch materials; jackets, coats, leisure wear

Keyhole Buttonhole with Pointed Bartack
For firmer, non-stretch fabrics: jackets, coats, leisure wear

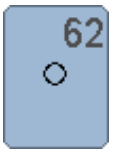


Straight-stitch buttonhole
Program for staystitching buttonholes, for pocket openings, reinforcing buttonholes; especially for buttonholes in leather and imitation leather



Button sew-on program
For buttons with 2 and 4 holes.

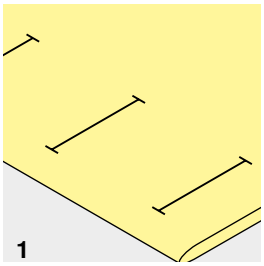
Eyelet with small zig-zag
Openings for cords and narrow ribbons, decorative work

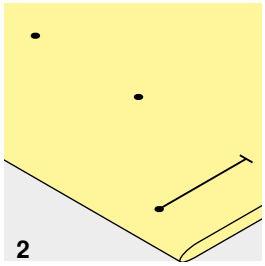


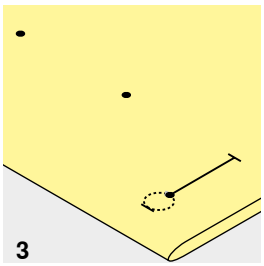
Straight-stitch eyelet
Openings for cords and narrow ribbons, decorative work

Heirloom buttonhole
For light- to medium weight woven fabrics; blouses, dresses, leisure wear, bed linen

Buttonhole - Important information







1 Marking the length of manual buttonholes
- mark the buttonhole length in the desired position
- use buttonhole foot No. 3C (optional accessory)

2 Marking the length of automatic buttonholes
- mark the length of just one buttonhole
  - after sewing the first buttonhole the length is prgrammed
- mark only the beginning of all subsequent buttonholes
- use automatic buttonhole foot No. 3A

3 Marking the length of keyhole buttonholes
- mark the bead length only
  - the correct length eye will be added when the buttonhole is sewn
  - after sewing the first buttonhole the length is programmed
- mark only the beginning of all subsequent buttonholes
- use automatic buttonhole foot No. 3A

Test sewing
- always sew a test sample of the same fabric and
- with stabilizer you intend to use
- select the buttonhole type you intend to use
- sew the buttonhole in the same direction on the fabric (horizontal or vertical, with or against the grain)
- cut the buttonhole open
- push the button through the buttonhole
- adjust the buttonhole length if necessary

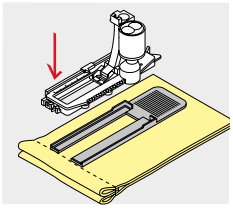
To adjust the bead width
- alter the stitch width

To adjust stitch length

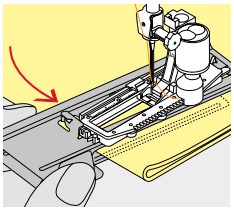
Stitch length adjustments affect both buttonhole beads.
  - spacing between the stitches

After stitch length adjustment:
- re-program the buttonhole

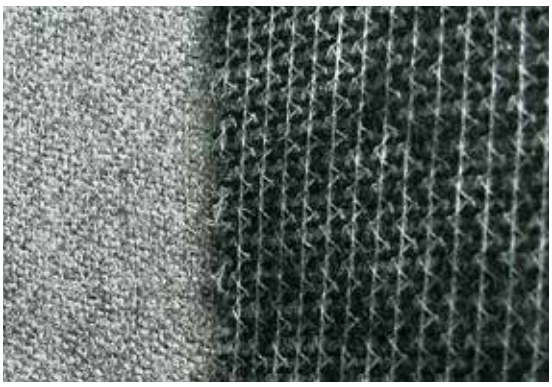
If a buttonhole is to be sewn at right angles to the seam, we recommend the use of the height compensation plates (optional accessory). Place the plates from the back between fabric and bottom of slide foot up to the thick part of the fabric and push to front.



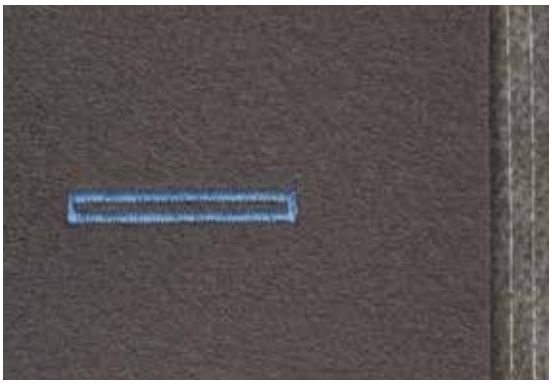
When sewing a buttonhole in difficult materials, we recommend to using the Compensation plate for buttonholes (optional accessory). It can be used along with buttonhole foot No. 3A.



Stabilizer



– interfacing provides durability and stability to the buttonhole
– choose the interfacing according to the material being used

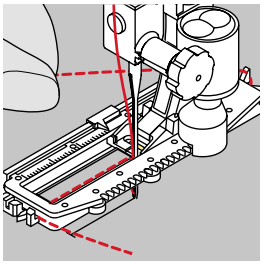


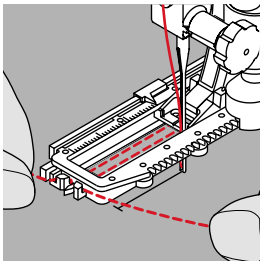
– when using thick or fluffy materials an embroidery stabilizer can be used
► therefore the fabric feeds better

Cords

Generally
- – cords reinforce buttonholes and enhance their appearance
- – the loop of the cord should be at the end of the buttonhole that is most subject to wear = where button is sewn on
- ■ position the work accordingly

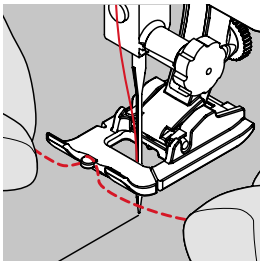
Ideal cords
- – Perle cotton No. 8
- – strong hand-sewing thread
- – fine crochet yarn

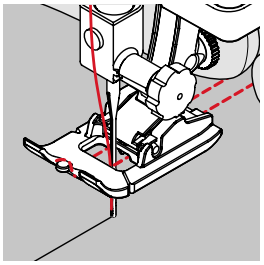




Cord with the automatic buttonhole foot No. 3A
- ■ raise the buttonhole foot No. 3A
- ■ insert the needle at the beginning of the buttonhole
- ■ guide the cord on the right side under the buttonhole foot No. 3A
- ■ hook the cord over the pin at the back of the buttonhole foot No. 3A
- ■ pull the cord on the left side under the buttonhole foot No. 3A to the front
- ■ pull the cord ends into the slits
- ■ lower the buttonhole foot No. 3A

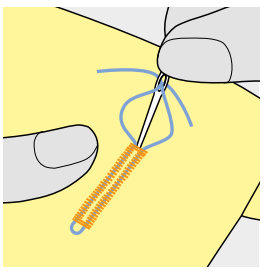
Sewing
- ■ sew the buttonhole in the usual manner
- ■ do **not** hold the cord
- ► the buttonhole will sew over the cord, covering it





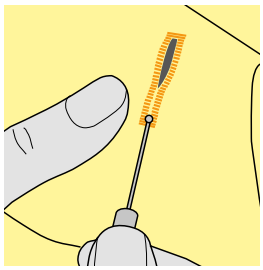
Cord with the buttonhole foot No. 3C (optional accessory)
- ■ raise the buttonhole foot
- ■ insert the needle at the beginning of the buttonhole
- ■ hook cord over the pin in the middle of the buttonhole foot (at the front)
- ■ pull both cord ends under the buttonhole foot sole to the back and
- ■ place both ends of the cord in the grooves on the sole
- ■ lower the buttonhole foot

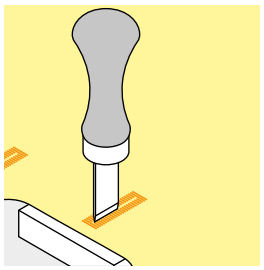
Sewing
- ■ sew the buttonhole in the usual manner
- ■ do **not** hold the cord
- ► the buttonhole will sew over the cord, covering it



Fixing the cord
- ■ pull the cord through the buttonhole until the loop disappears into the end of it
- ■ pull the ends of the cord through to wrong side of the fabric, using a hand stitching-needle
- ■ knot or secure with stitches

Before cutting the buttonhole open
Place a pin in each end of the buttonhole to prevent accidental cutting into ends of buttonhole.





Cutting buttonholes open with the seam ripper
- ■ cut the buttonhole from the ends to the middle

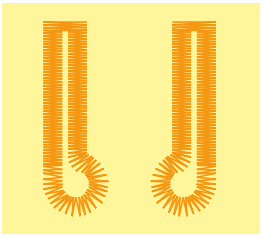
Cutting open buttonholes with the buttonhole cutter (optional accessory)
- ■ place the fabric on the wood
- ■ place the cutter in the centre of the buttonhole
- ■ press down on the cutter with your hand

Altering the balance

- touch «i»-icon
- touch «Balance»-icon

Balance with direct entry length buttonholes
The balance alterations have the same effect on both beads.

Balance with direct entry length keyhole or round buttonholes
The balance alterations have the same effect on both beads.
The keyhole or eye is balanced as follows:
- sew straight stitches forward until
- ► the sewing computer changes to the keyhole or eye, then
- stop the sewing computer
- touch the «Balance»-icon
- turn the stitch length-knob until the picture in the right portion of the Display is identical with the sewn buttonhole

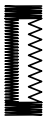


A B

The keyhole is distorted to the right **A**:
- turn stitch length knob to the left

The keyhole is distorted to the left **B**:
- turn the stitch length-knob to the right
- touch «Back»-icon and complete the buttonhole

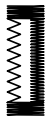
Balance for manual keyhole or round buttonhole
Any balance alteration affects both beads differently:
Left bead too dense **C**:



C

- turn the stitch length-knob to the left
- ► the left bead is elongated, the right bead is shortened

Left bead too wide **D**:



D

- turn stitch length-knob to the right
- ► the left bead is shortened, the right bead is elongated

The keyhole or eye is balanced as follows:
The keyhole is distorted to the right **A**:
- turn the stitch length knob to the right

The keyhole is distorted to the left **B**:
- turn the stitch length knob to the left

Balance for manual standard buttonhole
The balance alterations have the same effect on both beads.

Balance for stitch counter buttonhole
The balance has a different effect on both beads (see picture of the manual buttonhole).
- re-program the buttonhole after each alteration in balance

Clear balance
- touch the yellow-framed icon in the special Balance-display or
- press the «clr»-button
- ► «clr» also deletes the programmed buttonhole!

Recommendation
Test-sewing of the buttonhole on the original material.

In all Direct entry length and manual buttonholes each individual buttonhole sequence can be balanced separately.
In stitch counter buttonholes the balance affects both beads differently (left and right): When altering the bead the keyhole or eye are automatically altered accordingly.

Programming

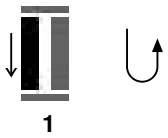
Standard and stretch buttonhole with auto-length, automatically

Buttonhole foot No. 3A

Automatic standard and stretch buttonhole No. 51, 52, 53

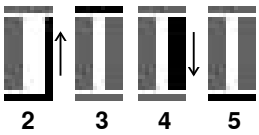
The lens on the automatic buttonhole foot No. 3A automatically registers the length of the buttonhole for exact duplication.
For buttonholes of 4-31mm, depending on the buttonhole type.

The slide foot must lie perfectly flat on the fabric! If the slide foot rests on a seam allowance, the length cannot be measured accurately.



Programming the buttonhole

1
- ■ sew first bead forward
- ■ stop the sewing computer
- ■ press the «Quick reverse»-button
- ► «auto» and the programmed length (in mm) appears in the Display
- ► the buttonhole length is programmed



The sewing computer sews automatically:

2 the straight stitches in reverse
3 the first bartack
4 the second bead forwards
5 the second bartack and securing stitches
- ► the sewing computer stops and returns automatically to buttonhole begin

Auto buttonhole
- ► all subsequent buttonholes will be sewn to exactly the same length (no need to press the «Quick reverse»-button)
- ■ the programmed buttonholes can be saved in the long-term memory (see page **83**)
- ■ press the «clr»-button
- ► the programmed settings are cleared

Exact duplication
The auto function ensures that each buttonhole will be exactly the same length as the previous one.

Sewing speed
- – sew at moderate speed for best results
- – sew all buttonholes at the same speed for a consistent bead density

Automatic with direct legth entry

Buttonhole foot No. 3A

Programming the buttonhole length
Buttonholes can be sewn to a specific length with the buttonhole foot No. 3A.
Buttonhole length = cutting length in mm.

- select the desired buttonhole
- touch «i»-icon
- touch «Direct entry length»-icon

Determining buttonhole length
- enter the buttonhole length using the multifunction knobs (stitch width or stitch length knob)
  - the length entered appears on the left of the button
  - the number on the right of the button is the exact button size
- touch «Back»-icon
  - the length entered is saved
  - the programmed length is displayed on the left

Back to the buttonhole menu
- touch «Back»-icon
  - the Buttonhole Display appears

Automatic with button measuring

Buttonhole foot No. 3A

Determining button size
The sewing computer calculates the length of the buttonhole directly from the diameter of the button. 2mm are automatically entered for the button thickness.
- hold the button on the bright field in the lower right corner of the Display
- adjust the bright field to the button size using the stitch width or stitch length knob
  - the button size is displayed in mm on the right of the button between the arrows (e.g. 14mm)
- remove the button from the Display
- touch «Back»-icon
  - the length entered is saved
  - the programmed length is shown on the left side of the Display

Corrections for thick buttons
Match buttonhole length to buttonhole thickness (raised buttons, etc.) e.g. buttonhole length + 1cm (incl. 2mm) if button height is 1cm.
The button slides easily through the buttonhole.

Back to buttonhole begin
- touch «Pattern begin»-icon
  - the sewing computer sets the program to the start of the buttonhole again

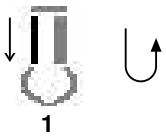
Deleting saved buttonholes
- press the «clr» button or touch «recording»
  - «auto» goes off and «REC» appears
- a new buttonhole length can be programmed

Automatic round and keyhole buttonhole

Buttonhole foot No. 3A

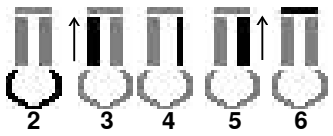
Automatic round and keyhole buttonhole No. 54, 56, 57

The slide foot must lie perfectly flat on the fabric! If the slide foot rests on a seam allowance, the length cannot be measured accurately.



Programming buttonholes

1
- ■ sew straight stitches forward
- ■ stop the sewing computer
- ■ press «Quick reverse»-button
- ► «auto» and the programmed length (in mm) appears in the Display
- ► the buttonhole length is programmed



The sewing computer sews the following automatically:

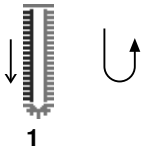
2 the eye
3 the first bead in reverse
4 the straight stitches forward
5 the second bead in reverse
6 the bartack and securing stitches
- ► the sewing computer stops and returns automatically to buttonhole begin

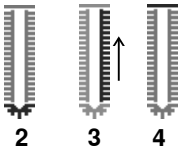
Auto-buttonhole
- ► all subsequent buttonholes will be sewn to exactly the same length (no need to press the «Quick reverse»-button)
- ■ the programmed buttonholes can be saved in the long-term memory (see page **83**)
- ■ press «clr»-button
- ► the programmed settings are cleared

Exact duplication
The auto function ensures that each buttonhole will be exactly the same length as the previous one.

Double sewn keyhole buttonholes
- – keyhole buttonholes can be sewn twice on thick fabrics - use a longer stitch length for the first run
- – after sewing the first buttonhole, do not move the work
- – reduce the stitch length manually and sew the buttonhole again

Heirloom Buttonhole





Buttonhole foot No. 3A

Heirloom buttonhole No. 63

Programming the buttonhole

1
- ■ sew first bead forward
- ■ stop the sewing computer
- ■ press «Quick reverse»-button
- ► «auto» and the programmed length (in mm) appears in the Display
- ► the buttonhole length is programmed

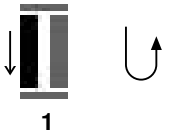
The sewing computer sews the following automatically:

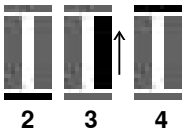
2 the round part
3 the second bead in reverse
4 the bartack and the securing stitches
- ► the sewing computer stops and returns automatically to buttonhole begin

Auto buttonhole

- ► all subsequent buttonholes will be sewn to exactly the same length (no need to press the «Quick reverse»-button)
- ■ the programmed buttonholes can be saved in the long-term memory (see page **83**)
- ■ press «clr»-button
- ► the programmed settings are cleared

Stitch counter buttonhole





Buttonhole foot No. 3C

All buttonhole types

Programming the buttonhole

1
- ■ sew first bead forward
- ■ stop the sewing computer
- ■ press «Quick reverse»-button

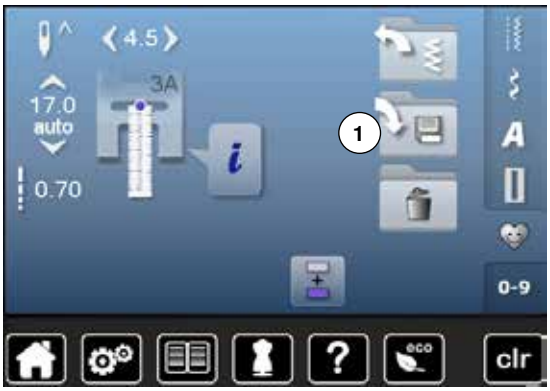
2 sew lower bartack and
3 sew second bead in reverse
- ■ stop the sewing at the first stitch
- ■ press «Quick reverse»-button

4 the sewing computer sews the upper bartack, the securing stitches and stops automatically
- ► «auto» appear in the Display
- ► the buttonhole length is programmed
- ► each subsequent buttonhole will be sewn identically

– the first bead (left) is sewn forwards, the second bead (right) is sewn in reverse

Buttonhole in long term memory

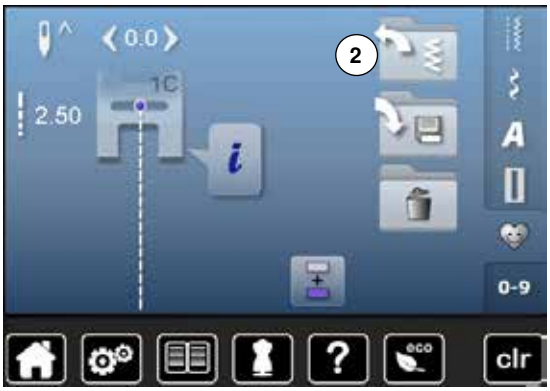
- touch «Memory»-button



Programming the buttonhole

- touch «Save»-icon **1**
- the «Save»-display appears
- touch «Save»-icon
- ► the buttonhole is now saved in long term memory

- touch «Memory»-button



Selecting a saved buttonhole

- touch folder **2**

- select buttonhole

Altering saved buttonhole

- touch «i»-icon
- touch «Direct entry length»-icon
- alter the length of the saved buttonhole
- touch «Back»-icon twice
- reprogram the buttonhole as described

- touch «Memory»-button

Deleting a saved buttonhole

- touch «Delete»-icon **1**
- ► the saved buttonholes appear
- select desired buttonhole
- confirm with ✔
- ► the buttonhole is deleted

7- or 5-steps-buttonhole, manually

- select the desired buttonhole
- touch «i»-icon
- touch «man»-icon

The length of the beads is manually determinded when sewing. Bartack, eye and securing stitches are pre-programmed. The individual steps can also be selected by scrolling, by using the arrow icons or by touching the «Quick reverse»-button.

Sewing 7-Step buttonhole

- step **1** is activated for buttonhole begin
- step **2** is actived when beginning to sew
- sew first bead
- stop the sewing computer at desired length of the bead or to the end of the length marking
- select step **3**
- sewing computer sews straight stitches in reverse
- stop sewing computer at the height of the first stitch (buttonhole begin)
- select step **4**
- the sewing computer sews top bartack and stops automatically
- select step **5**
- the sewing computer sews the second bead
- stop the sewing computer at the height of the first bead
- select step **6**
- the sewing computer sews bottom bartack and stops automatically
- select step **7**
- sewing computer secures stitches and stops automatically

Sewing 5-Step buttonhole

- step **1** is activated for buttonhole begin
- step **2** is activated when beginning to sew
- sew first bead
- stop the sewing computer at desired length of the bead or at the end of the length marking
- select step **3**
- the sewing computer sews the eye or the keyhole and stops automatically
- select step **4**
- the sewing computer sews the second bead in reverse
- stop the sewing computer at the height of the first stitch (buttonhole begin)
- select step **5**
- sewing computer sews the top bartack and secures stitches automatically

Straight stitch buttonhole No. 59

– The same programming procedure as with the auto buttonhole program (see page **79**)

– Staystitching buttonholes with the straight stitch buttonhole No. 59 is recommended for soft, loosely woven fabrics and for buttonholes that will receive excessive wear. Staystitching also reinforces buttonholes in leather, vinyl and felt

Button sew-on program

- touch «Buttonhole«-button
- touch «Button sew-on program»-icon

Darning foot No. 9 (optional accessory)
Button sew-on foot No. 18 (optional accessory)

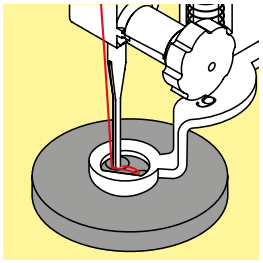
Button sew-on program No. 60

For buttons with 2 and 4 holes.

Preparation
- lower the feed dog

Sewing on Buttons
Buttons sewn on for decorative purposes only are stitched without a thread shank. «Shank length» = distance between button and fabric; can be adjusted with Button sew-on foot No. 18

Sewing on buttons with darning foot No. 9 (optional accessory)
- select button sew-on program
- check distances between holes with the handwheel
- adjust stitch width if necessary
- hold the threads when starting to sew
- sew the first securing stitches into the left hole
- sew program
- ► sewing computer stops automatically when program is completed and is ready for the next button

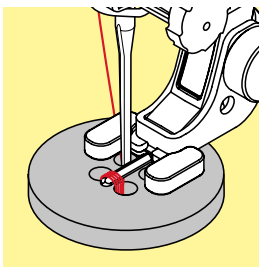


Beginning and ending threads
The threads are secured and can be trimmed.

For a increased stability
- pull on both bobbin threads until the ends of the upper threads are visible on the wrong side
- pull the threads out and knot the ends additionally
- trim the threads

Sewing on buttons with foot No. 18 (optional accessory)
- set the shank length with the screw on the foot
- select button sewing-on program and continue as with foot No. 9

Sewing on a 4-Hole button
- sew the front holes first
- carefully move the button forward
- sew the back holes with the same program



For a increased stability the button sew-on program can be sewn twice.

Eyelet program

- touch «Buttonhole»-button
- touch «Eyelet program»-icon

Reverse pattern foot No. 1C

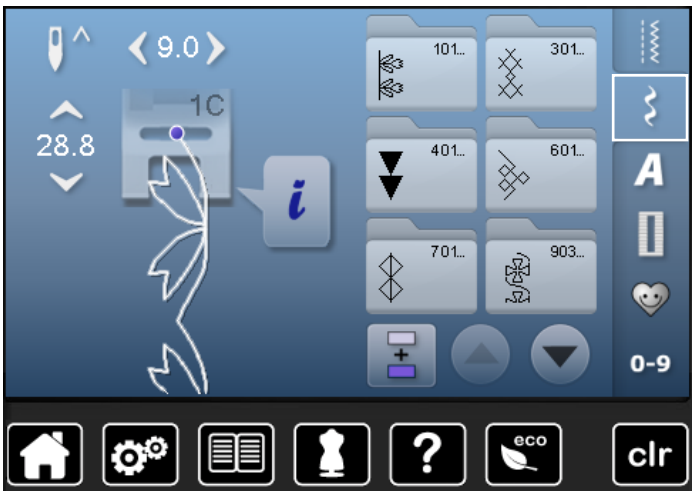
Eyelet with small zig-zag No. 61
Straight stitch eyelet No. 62

Sewing eyelets
- select eyelet
- position fabric under the presser foot and sew eyelet program
- ► sewing computer stops automatically and is at the beginning of the eyelet program again

Punching eyelets
- use an awl, punch pliers or a hole punch to open the eyelet

Adjust the roundness of the eyelet if necessary with balance.
For increased stability sew the eyelet twice.

Overview Decorative stitches



- touch «Decorative stitches»-button
- ► display shows an overview of the categories
- touch an icon
- ► the desired category is activated
- select the desired stitch pattern

Application

Depending on the type of material, simple or more complex decorative stitches should be selected to best suit the material.

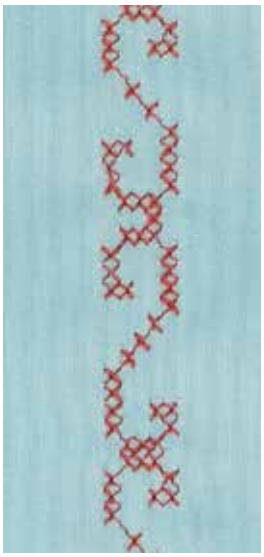
– decorative stitches which are programmed with simple straight stitches, are particularly appropriate for light weight materials, e.g. decorative stitch No. 101
– decorative stitches which are programmed with triple straight stitches or with a few satin stitches are particularly appropriate for medium weight materials, e.g. decorative stitch No. 107
– decorative stitches which are programmed with satin stitches are particularly appropriate for medium weight materials, e.g. decorative stitch No. 401

Categories
Cat. 100 = Florals
Cat. 300 = Cross stitches
Cat. 400 = Satin stitches
Cat. 600 = Ornamental stitches
Cat. 700 = Heirloom stitches
Cat. 900 = Novelty
Cat. 1300 = Quilt stitches

Perfect stitch formation
– use the same thread color for upper and lower thread
– reinforce the fabric on the wrong side using stabilizer
– use an additional, water-soluble stabilizer on the right side of pile or longfiber materials (e.g. wool, velvet etc.) which can be easily removed after sewing

Examples of application

Cross Stitches



Reverse pattern foot No. 1C or
Open embroidery foot No. 20C

Cross stitch

– cross stitching is a traditional technique, and extends the range of decorative stitches
– if the cross stitches are sewn on fabric with a linen texture, they look like hand-stitched cross stitching

Application
– for home furnishings
– for trimmings on garments
– for embellishing in general

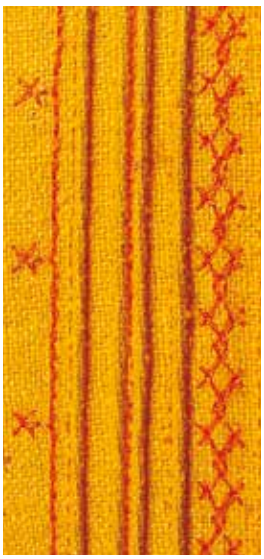
Sewing
Cross stitches of Category 300 can be stitched and combined like any other decorative stitches.

Sewing Trims
- select cross stitch
- stitch a row, using the seam guide or slide-on table seam guide

It is important to stitch the first row in a straight line, as it will serve as a reference for the rows that follow.
- select new stitch pattern
- stitch a second row next to first at a distance of one presser foot's width, or using the seam guide
- repeat for the following rows of stitching

Use cotton embroidery thread for cross stitching
Stitch appears fuller.

Pintucks

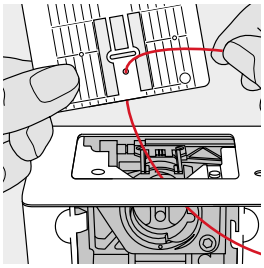


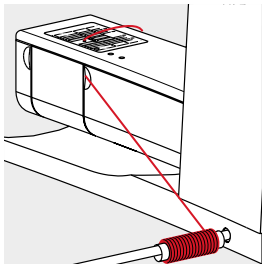
Pintuck feet (optional accessory)
- No. 30 (3 grooves) = 4mm double needle: for heavy weight materials
- No. 31 (5 grooves) = 3mm double needle: for heavy to medium weight materials
- No. 32 (7 grooves) = 2mm double needle: for light to medium weight materials
- No. 33 (9 grooves) = 1 or 1.6mm double needle: for very light materials (without additional pintuck cord)
- No. 46C (5 grooves) = 1.6-2.5 mm double needle: for very light to medium weight materials

Straight stitch No. 1

- this technique reduces the size of the fabric (allow for enough fabric)
- pintucks are narrow stitched folds which are normally sewn on the fabric before cutting out the pieces for garments or other sewing projects
- for embellishing or in combination with other heirloom embroidery techniques

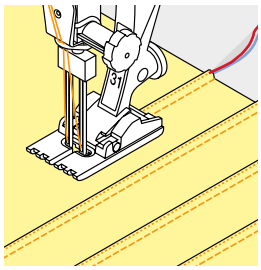
Corded pintucks
- pintucks may be sewn with or without cord
- cord pintucks for a raised effect and texture
- chose a cord that fits well into the grooves of the selected pintuck foot
- the cord must be colorfast and shrinkproof





Inserting the cord
- remove the stitch plate of the sewing computer (see page **19**)
- open the bobbin door
- pull the cord through the hook opening from the bottom and through the opening of the stitch plate
- replace the stitch plate

- close the bobbin cover
- make sure that the cord slides within the thread slot of the bobbin cover
- place the cord spool on the arm of the Free Hand System
- check that the cord runs smoothly



Sewing pintucks
- sew first pintuck, marking the stitching line if necessary
- ► the cord will automatically feed into the pintuck

The cord lies on the wrong side of the material and is hold/sewn over by the lower thread.
- turn work if necessary
- place first pintuck in one of the side grooves in the presser foot (depending on the desired distance)
- sew second pintuck
- sew additional pintucks parallel to these two

If the thread doesn't slide smoothly past the bobbin cover, open the cover while sewing and turn off the lower thread indicator in the Setup Program.

Bobbin-Play sewing

Free motion sewing
The bobbin can be filled different thread material. For free-motion stitching to add texture. This method is similar to «normal» free-motion sewing, but is done on the **wrong side** of the fabric.

Reinforce the area to be sewn with embroidery stabilizer. The design can be drawn on the wrong side of the fabric. You can also draw the design on the front of the fabric, then follow the lines with a freely guided straight stitch and polyester, cotton or rayon thread. The rows of stitching are visible on the right side of the fabric, and serve as reference lines for the bobbin-thread sewing.

The BSR function can be used for bobbin-thread sewing. Guide your project at uniform speed evenly under the needle, follow the lines of the design. Remove the stabilizer after you finish sewing.

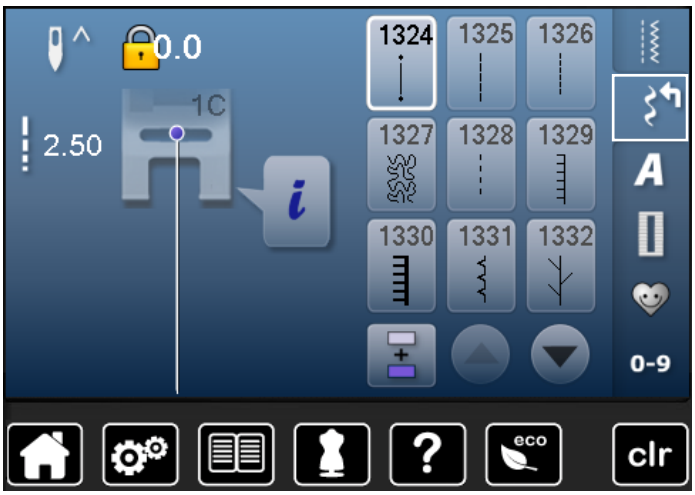
Sew a sample first to check what the result looks like on the wrong side of the fabric. Alter the lower thread or upperthread tension if required.

To make the lower thread slide smoothly, insert the bobbin so that it turns counterclockwise.
The lower thread indicator has to be deactivated in the Setup Program (see page **45**).

Sewing decorative stitches
Not all decorative stitches are suitable for this technique. Simple decorative stitches provide best results. Avoid compact stitch types and satin stitches.

The Open Embroidery foot No. 20 is ideal for this technique.
– adjust stitch length and width settings (widen, lengthen) so that nice results are also achieved when sewing with thicker threads
– the long stitch function produces another decorative effect

Overview Quilt stitches



Various stitch patterns are available which are used especially in quilting, for patchwork or for appliqué.

- touch «Decorative stitch»-button
  - display shows an overview of the categories

Cat. 1300 = Quilt stitches

- select desired stitch pattern
  - the stitch width cannot be altered with certain stitch patterns
  - is indicated by a lock symbol

Quilters' securing program

Quilting straight stitch

Piecing stitch/Straight stitch

Stippling stitch

Handlook quilt stitch

Blanket stitch

Double blanket stitch

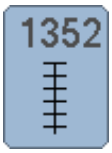
Blind stitch (narrow)

Feather stitch

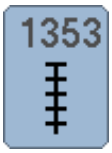
Feather stitch variations
1333-1335, 1337, 1338

Decorative quilt stitch variations
1339-1345, 1351

Quilt stitch/Handlook quilt stitch variations
1347, 1348, 1350



Blanket stitch (dual)



Double blanket stitch (dual)

Satin stitch

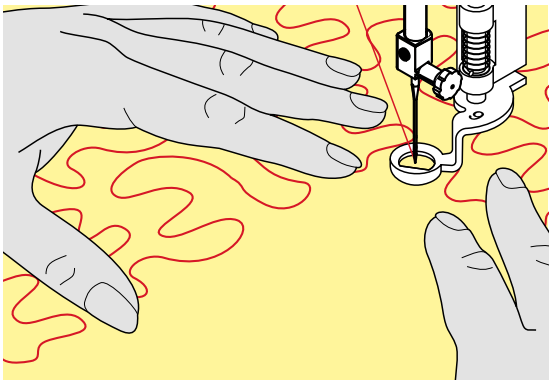
For free-motion quilting

Darning foot No. 9 (optional accessory)

Straight stitch No. 1

For free-motion quilting
For all types of free motion quilting work.

Preparation
- pin top layer, batting and backing together, or baste if necessary
- attach slide-on table
- use the Free Hand System
- lower the feed dog



Holding the work
- hold the work with both hands like an embroidery frame

Quilt gloves with rubber fingertips will help when guiding the work.

Quilting a design
- quilt from the center outwards
- guide the work using smooth, round movements to form the design of your choice

Stipple quilting
– this technique covers the entire surface of the fabric with quilt stitches
– the lines of stitching are rounded and never cross one another

Free-motion quilting and darning
The two techniques are based on the same Free Motion principles.

Poor stitch formation
– if thread is lying on top of the fabric, slow down the movement of the material
– if there are knots on the wrong side of the fabric, move the material more quickly

Monofilament breaks
Reduce the motor speed and/or loosen the upper thread tension.

Thread breaks
Guide the fabric more consistently.

Quilting with BSR (optional accessory)

BSR-Function
The BSR presser foot reacts to the movement of the fabric under the foot and controls the speed of the sewing computer up to the maximum speed possible. The following applies: the faster the fabric is moved, the higher the speed of the sewing computer.
If the fabric is moved too fast, an accoustic signal (beep sound) is heard, if the Beeper is activated (see page **97**).

ATTENTION!

As long as the BSR presser foot is illuminated red, adjustments like threading and changing the needle, for example, must not be carried out, as the needle will engage while fabric is moved unintentionally! Without fabric feed the BSR mode is turned off after approx. 7 seconds and the red light goes off.
Please refer to Safety Instructions!
By activating the BSR function the sewing computer sews either continuously at reduced speed (mode 1, standard), or as soon as the fabric is moved (mode 2).

BSR function with straight stitch No. 1
This function using the BSR presser foot, allows for free-motion quilting (sewing) using the straight stitch and a pre-selected stitch length up to 4mm. The regulated set stitch length is maintained within a certain speed, independent of the movement of the fabric.

BSR function with zig-zag No. 2
The zig-zag can be used e.g. for thread painting. The set stitch length will **not** be maintained when sewing with the zigzag stitch, but the BSR function simplifies the application.

There are two different BSR modes
– **BSR 1-Mode** is the active standard
– the sewing computer runs continuously at a reduced motor speed, as soon as the foot control or the «Start/Stop»-button is pressed
– the speed of the sewing computer is regulated by the movement of the fabric
– through continuous needle movement, securing in the same position is possible without pressing an additional button

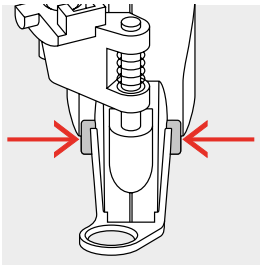
– **BSR 2-Mode** is activated by selecting the BSR 2-icon in the BSR-display
– the sewing computer will only engage if the foot control or the «Start/Stop»-button is pressed and the fabric is moved simultaneously
– the speed of the sewing computer is regulated by the movement of the fabric
– to secure press the «Securing function»-button
– by selecting the BSR 1-icon in the BSR-display Mode 1 is activated

For an even sewing start (the first stitch) the foot control must be pressed and the fabric moved simultaneously. This also applies for sewing points and straight stitching within a round form.

If the BSR function is deactivated and later re-activated without the sewing computer being switched off in between, the last selected BSR mode is active.
When exceeding a certain speed, adhering to regular stitch length cannot be guaranteed.

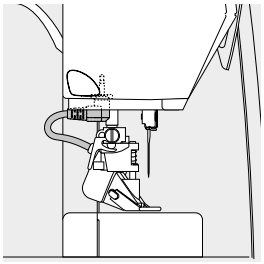
Make sure that the lens on the bottom of the BSR foot is clean (no fingerprints, etc.). Clean lens periodically with soft, slightly damp cloth.

Preparation
- lower the feed dog
- presser foot pressure may be reduced depending on the material type and thickness
- attach slide-on table
- use the Free Hand System

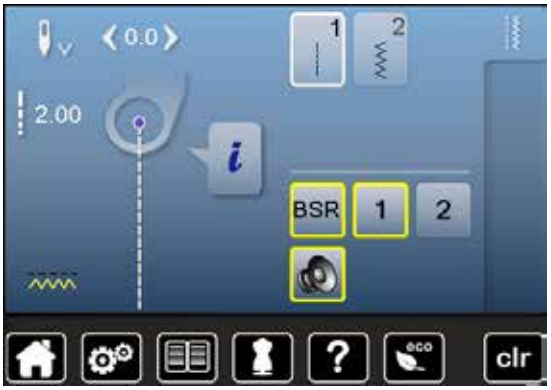


Remove presser foot sole
- press both buttons together
- slide the sole downwards out of the groove

Attaching the presser foot sole
- slide the desired sole up in the groove until it clicks into its place



- attach the BSR Presser Foot to the sewing computer
- plug the cable in the outlet provided



- ► BSR-display is opened automatically
- ► BSR 1 mode is engaged
- set the desired stitch length
  - – the standard stitch length is 2mm
  - – when sewing small forms and stipplings, stitch length of 1-1.5mm is suggested

Functions in the BSR mode

Needle stop down (standard)
- ► the arrow points down on the BSR-display
- ► the sewing computer stops with needle down, when taking foot off foot control or engaging the «Start/Stop»-button

Needle stop up
- ■ touch the «Needle stop»-icon in the Display
- ► the arrow points up
- ► the sewing computer stops with needle up, when taking foot off foot control or engaging the «Start/Stop»-button

Raise or lower the needle
- ■ press «Needle stop»-button
- ► to raise or to lower the needle

Securing with the «Start/Stop»-button (only Mode 1)
- ■ place the fabric under the presser foot
- ■ lower the presser foot
- ■ press the «Needle stop»-button twice
- ► the lower thread is brought up
- ■ hold upper and lower thread
- ■ touch «Start/Stop»-button
- ► BSR mode is activated
- ■ sew 5-6 securing stitches
- ■ touch «Start/Stop»-button
- ► the BSR mode is stopped
- ■ cut threads
- ■ touch «Start/Stop»-button
- ► BSR mode is activated
- ■ continue the stitching process

Securing function (only Mode 2)
- ■ press the «Securing function»-button
- ■ press either the foot control or the «Start/Stop»-button

By moving the fabric some short securing stitches are sewn, then the set stitch length will be activated and the securing function will be automatically deactivated.

Free motion quilting (only Mode 2)
- ► the BSR mode is activated
- ■ freemotion quilting can be sewn
- ■ by touching the securing function button is pressed during free hand quilting, a short securing stitch sequence is sewn and
- ► the sewing computer stops
- ► the BSR mode is deactivated

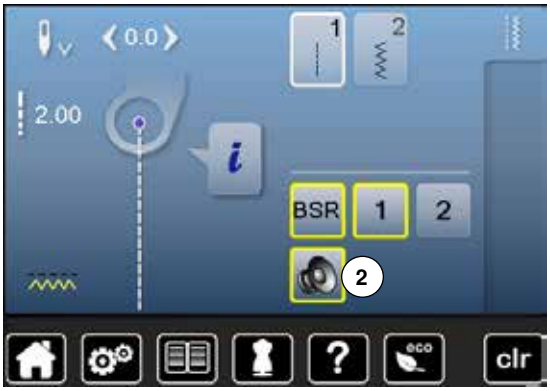
Free motion quilting without BSR activation
- ■ touch «BSR»-icon
- ■ the BSR mode is deactivated

Normal freemotion quilting can now be sewn with the BSR foot, without automatic regular stitch length.

Beeper (Acoustic signal) activation/deactivation
- touch «Setup»-button
- touch «Audio setting»-icon

Selecting sound for BSR in the Setup Program
- one sound is set as default (active)
- touch the icon **1** showing the loudspeaker for BSR
- the loudpseaker is highlighted in red
- the sound for the beeper is inactive

The loudspeaker is gray when the sound for the Beeper is active.



Selecting sound for BSR in the «BSR»-display
- touch the icon with the loudspeaker
- the loudspeaker is highlighted in red
- the sound for the beeper is inactive

The icon with the loudspeaker is gray and yellow-framed when the sound for the Beeper is active.

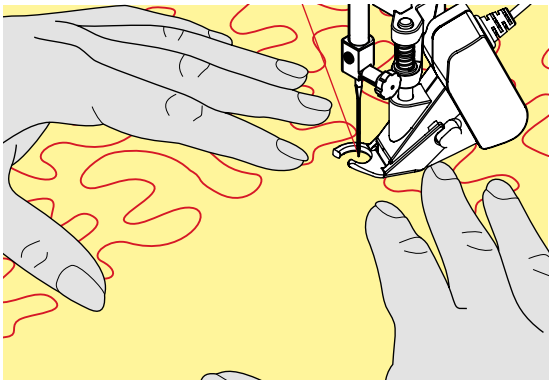
The sound selection icon **2** is only visible if the sounds are turned on in the Setup Program.

Activating the BSR Sewing Function
1. Option:
BSR-Function via the foot control.
- plug in the foot control
- lower the presser foot
- press the foot control
- ► BSR mode starts
- ► a red light appears on the presser foot
- press foot control while sewing
- – the speed of the sewing computer is regulated by the movement of the fabric
- release the foot control
- ► the BSR mode is stopped

2. Option:
BSR-Function via the «Start/Stop»-button.
- lower the presser foot
- touch «Start/Stop»-button
- ► BSR mode starts
- ► a red light appears on the presser foot
- – the speed of the sewing computer is regulated by the movement of the fabric
- press the «Start/Stop»-button again
- ► the BSR mode is stopped

Deactivating the BSR Sewing Function by using the «Start/Stop»-button
Mode 1
If the fabric is not moved for approx. 7 seconds, the BSR mode is deactivated and the red light on the presser foot goes off.

Mode 2
If the stitching process is ended by no longer moving the fabric, **one** additional stitch is made, depending on the needle position. The sewing computer always stops with needle up, even if the arrow on the Display points down.



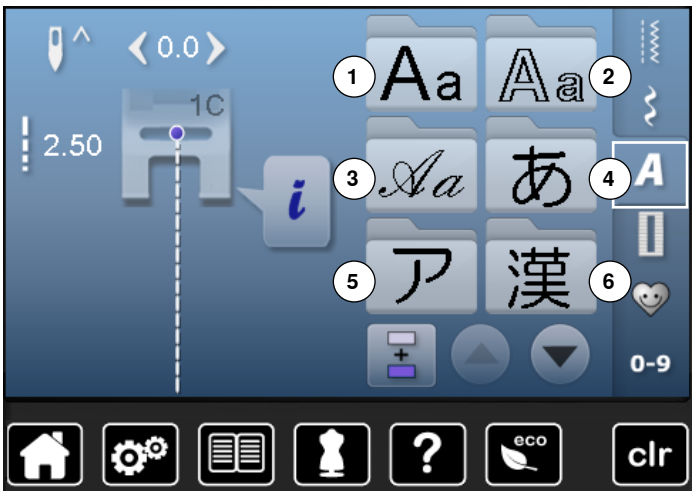
Holding the work
- hold the work with both hands like an embroidery frame
- – abrupt movements (slowing down resp. speeding up) can result in slightly too short or too long stitches
- – continuous movement (no abrupt movements) will provide best results
- – do not pivot the fabric while sewing

Quilt gloves with rubber fingertips will help when guiding the work.

Application example:
- – BSR with zig-zag No. 2
- – the zig-zag can be used for thread painting
- – areas can be filled and therefore forms or pictures can be created

BSR Function deactivation
- pull out the plug of the BSR presser foot connection cable on the sewing computer
- remove the BSR foot

Overview Alphabet



Block-, Double Block- and Script alphabet can be sewn in two different sizes.
Block-, Double Block- and Script alphabet can also be sewn in lower case.

- touch «Alphabet»-button
- ► the Display shows the overview with the different alphabet types

1 Block alphabet
2 Double Block
3 Script (Italics)
4 Hiragana
5 Katakana
6 Kanji
7 Kyrillic

- select desired alphabet

Lettering

- all capital letters, numbers, punctuation marks and special characters can be viewed using the arrow icons

Perfect stitch formation

- use the same thread color for upper and lower threads
- reinforce the fabric with embroidery stabilizer on the wrong side
- use an additional, water-soluble stabilizer on the right side of pile or longfiber fabrics (e.g. wool, velvet etc.)
- for lightweight fabrics more simple lettering types programmed with straight stitches are suitable (such as double block letters)

Combining lettering

Individual letters and rows of the same letter of the same alphabet are sewn in single mode.
Letters for names, addresses, words, etc. are combined and sewn in combi mode.

- touch «Combi mode»-icon
- touch the icon with the desired letter
- ► the letter appears in the Stitch altering area
- ► the cursor is below the letter

Selecting the next letter

- touch the required icon
- ► the next letter appears in the Stitch altering area etc.

Correcting the combination

Inserting lettering
A letter is always inserted above the cursor.
Inserting an additional letter at the beginning of a pattern combination:

- move the cursor up by using the arrow icons

Activating desired place:

- select or scroll to required letter in the Stitch altering area
- select new letter
- ► letter is inserted above cursor

Deleting Letters
A letter is always deleted above the cursor.
Activating desired place:

- select or scroll to the required letter in the Stitch altering area
- touch «Delete»-icon
- ► letter is deleted

Saving and deleting combinations see page **106, 110**.

Alphabet in combination with functions

Select lower case

- touch the «Upper/Lower case»-icon
- the lower case «a» is highlighted in black and jumps to the upper left corner of the icon
- the lower case is activated
- touch the «Upper/Lower case»-icon again
- the upper case «A» is highlighted in black and jumps to the upper left corner of the icon
- upper case is activated again

Change size

- touch «i»-icon
- touch «Lettering size»-icon
- the icon with the number **2** turns blue
- the font size is reduced
- touch the «Lettering size»-icon again
- larger size is activated again (number 1 is highlighted in blue)

Personal program

Creating a Personal Display

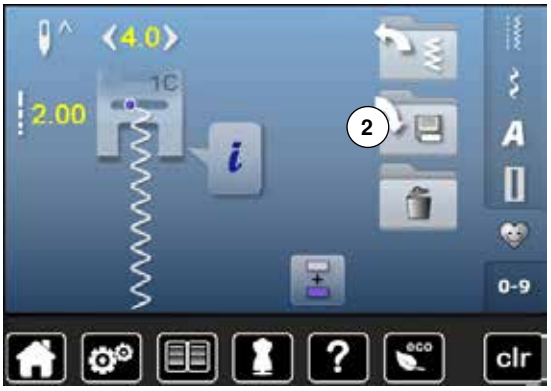
Use the Personal program to create a file with stitches you use most for a special project. Stitch patterns as well as their alterations are saved in the Personal program.

The following alterations can be saved:
- Stitch width
- Stitch length
- Needle position
- Thread tension
- Mirror image
- Pattern extend
- Long stitch
- Balance
- Pattern repeat 1–9x

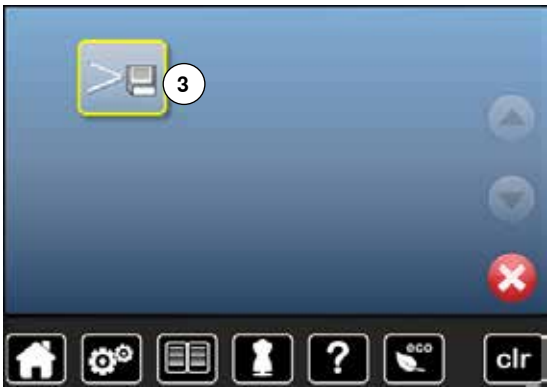
If the memory has already been filled with embroidery motifs and stitch pattern combinations, no further stitch patterns can be saved in the Personal program. An appropriate message appears. The content in the memory must first be deleted to ensure there is sufficient free space.

Preparing stitch patterns

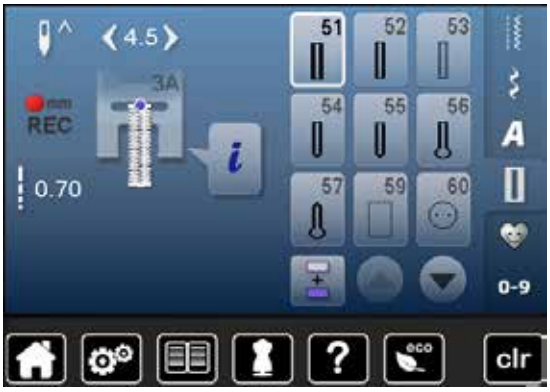
Programming/Saving first stitch pattern
- select e.g. the zig-zag in the «Practical stitch»-display
- make alterations
- touch «Personal program»-button **1**



- touch «Save»-icon **2**



- touch «Save»-icon **3**
- the altered zig-zag is saved
- the Display closes



Programming/Saving second stitch pattern

- touch «Buttonhole»-button
- select standard buttonhole No. 51
- save the stitch pattern as desribed above
- save any other stitch pattern in the same way

Stitch pattern selection in the Personal program

- touch «Personal program»-button

- touch «Open»-icon **4**

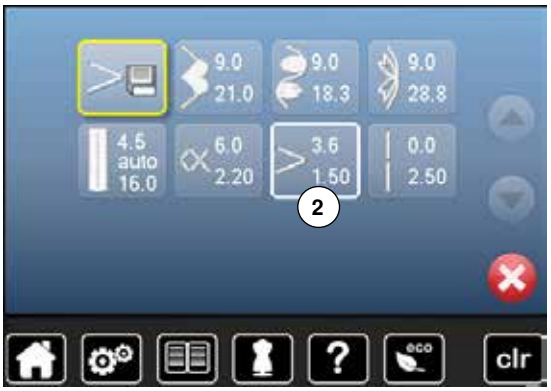
Personal Display

- the programmed stitch patterns are displayed in pictures as well as with stitch width and stitch length
- further stitch patterns can be scrolled by using the arrow icons

Alterting/Overwriting stitch patterns

Selecting stitch pattern

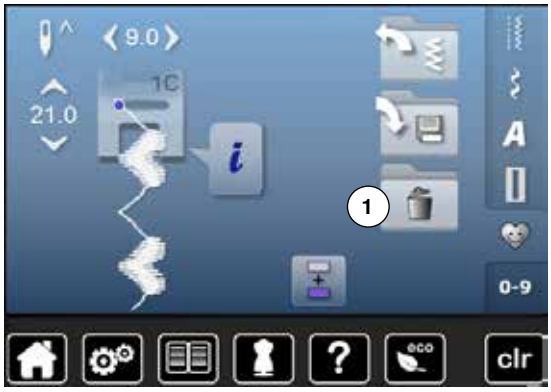
- touch «Personal program»-button **1**
- select zig-zag
- make alterations
- ► stitch width and stitch length are altered (yellow numbers)
- touch «Personal program»-button
- touch «Save»-icon



- select zig-zag **2**

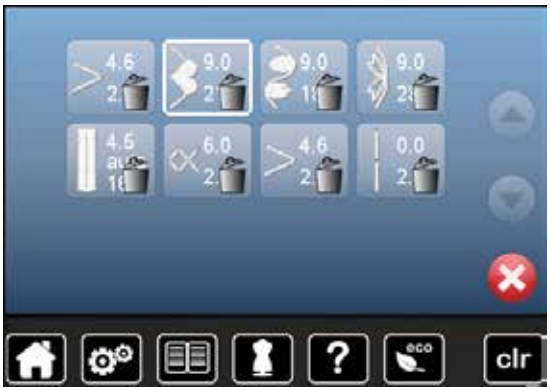
- confirm with ✔
- ► the alterations are saved

Deleting stitch patterns



Selecting stitch pattern

- touch «Personal program»-button
- touch «Delete»-icon **1**



- select the stitch pattern to be deleted

- confirm with ✔
- ► stitch pattern is deleted
- ► the remaining stitch patterns are moved by one position

Combi mode

The sewing-/embroidery computer has a memory system where both, the sewing and embroidery memories are saved.

In the sewing memory stitch patterns, lettering and numbers can be combined and saved.

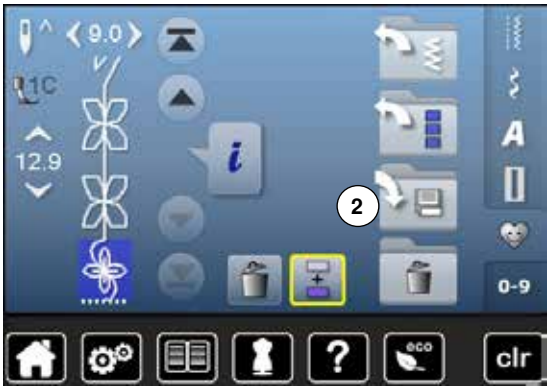
In the sewing memory each «Drawer» can store a maximum of 70 stitch patterns as long as there is sufficient free space (capacity) available. If the storage space (but not all drawers) is full, there may be too many embroidery designs in the memory.

The memory is long-term, i.e. contents are kept until they are deleted. A power cut or switching off the sewing-/embroidery computer does not have any effect on the stored contents.

Creating stitch combinations

Programming and saving

- touch «Decorative stitch»-button
- select category
- touch «Combi mode»-icon
- select the desired stitch pattern directly or type in the number
- make any alteration concerning stitch length, stitch width, needle position etc.
- select another stitch pattern
- touch «Memory»-icon **1**



- touch «Save»-icon **2**

- touch «Save»-icon **3**
- ► the combination is saved
- ► the Display closes

Deleting Stitch Patterns

Deleting patterns in steps

- touch the «Delete»-icon
- ► stitch pattern above the cursor are deleted
- touch the «Delete»-icon as many times until the stitch altering area is empty

Deleting combination

- touch «i»-icon
- touch «Edit the complete combination»-icon
- touch the «Delete»-icon
- confirm with ✔
- ► the stitch altering area is empty
- touch «Back»-icon
- a new pattern combination can be programmed

Opening a saved combination

- touch «Memory»-button
- touch «Open»-icon **1**

- ► a summary of the saved combinations appears
- touch the desired drawer
- ► the saved combination appears in the stitch altering area

Correcting a stitch pattern combination

Inserting a stitch pattern

- select the desired position in the combination
- select the new stitch pattern
- ► the new stitch pattern is inserted below the selected stitch pattern

To insert a stitch pattern at the beginning of a combination the cursor must be positioned above the **first** stitch pattern.

Altering stitch patterns

- select the desired stitch pattern in the combination
- touch «i»-icon
- select desired function, e.g. Mirror image left/right
- ► the stitch pattern is mirrored left/right
- touch «Back»-icon

The alterations always affect the stitch above the cursor. Saved stitch combinations can be altered or corrected in the same way. To make corrections and alterations permanent, the combination must be saved again afterwards.

Mirroring complete combinations

- touch «i»-icon
- touch «Edit complete combination»-icon
- touch «Mirror image»-icon
- ► the complete combination is mirrored
- touch «Back»-icon twice

Combination subdivider 1

- touch «i»-icon
- touch «Edit combination at cursor position»-icon
- touch «Subdivide combination 1»-icon
- a combination can be subdivided into several sections with the «Subdivider 1»-function
- ► only the section where the cursor is positioned is sewn
- to sew the next section, the cursor must be placed in the respective section

Interrupting a combination

- touch «i»-icon
- touch «Edit combination at cursor position»-icon
- touch «Subdivider 2»-icon
- a combination can be interrupted at any position using «Subdivider 2»-function
- sew the first section
- ► the sewing computer stops automatically when it reaches the programmed function
- reposition the fabric
- sew the next part etc.

Stitch pattern combination

Overwriting

- program a new stitch combination
- touch «Memory»-button
- touch «Save»-icon
- select the drawer to be overwritten (e.g. 3)
- confirm with ✔

Touch ✕ to cancel the overwriting procedure.

Deleting

- touch «Memory»-button
- touch the «Delete»-icon
- select the Drawer to be deleted (e.g. 5)
- confirm with ✔

Touch ✕ to cancel the deleting procedure.

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- Preparing for Embroidery 114

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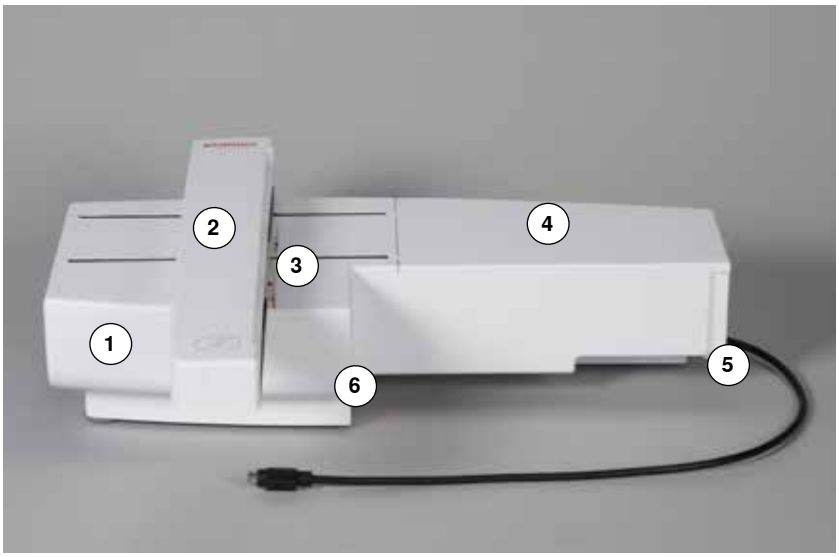
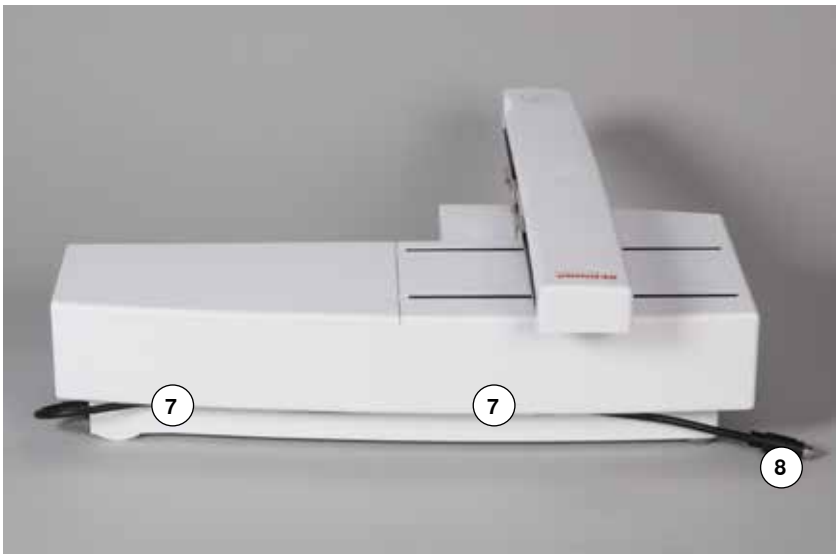
Standard Accessory

- Embroidery foot No. 26
- Embroidery bobbin case
- Embroidery needle pack
- Embroidery hoop oval, 145x255mm
- Embroidery template for embroidery hoop oval, VAR 01
- Embroidery hoop medium, 100x130mm
- Embroidery template for medium embroidery hoop
- Net for thread spool
- USB connecting cable
- Carrier bag

Detail view



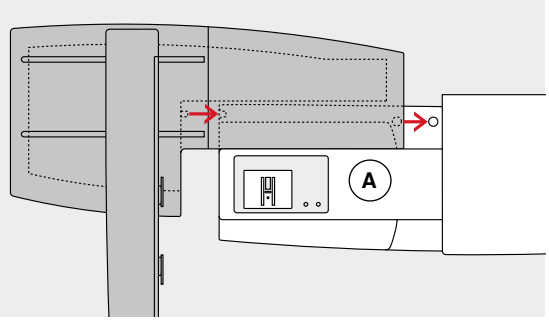
1 Accessory drawer
2 Embroidery arm
3 Bracket for attaching embroidery hoop
4 Embroidery surface
5 Connecting lug right
6 Connecting lug center



7 Cable holder
8 Sewing computer connecting cable

The side view of the sewing-/embroidery computer with the cable connections are shown on page **11** of this sewing-/ embroidery computer instruction manual.

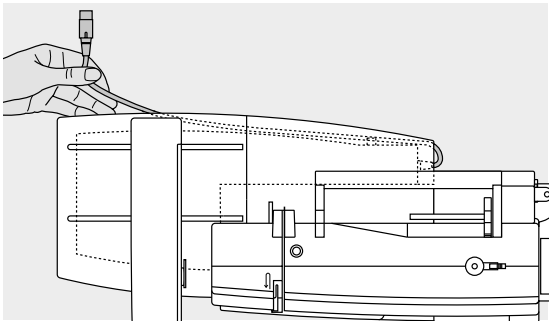
Embroidery module



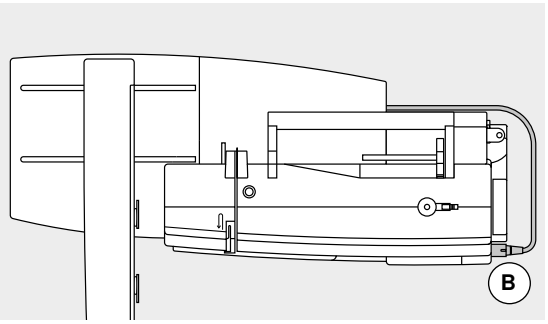
ATTENTION!
When connecting the embroidery module, attention must be paid that all items are on a flat and even surface! Always separate the module and sewing computer for transportation. Never transport them attached.

Attaching the module to the sewing computer
- place the module behind the free arm **A** to the sewing computer
- push the module from the left towards the sewing computer so that the connecting lugs engage

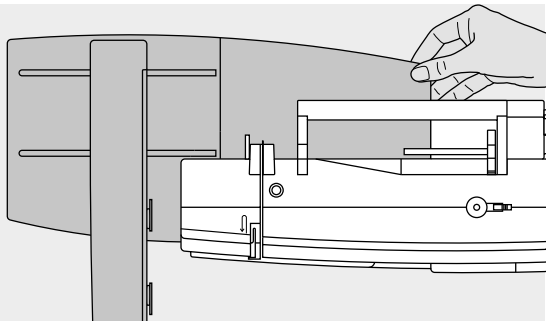
The module must be engaged in the base plate of the sewing computer.



Connection cable
The cable connects the module and the sewing computer.
- pull the cable out of the holder on the back of the module



Connecting the cable with the sewing computer
- hold flat side to the front
- plug the cable into the outlet provided **B**

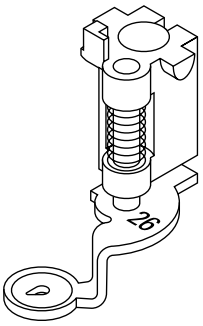


Removing the module
- remove the plug from the outlet
- grip the back right corner to lift the module
- lift the module and remove to the left

Storing the cable on the module
- insert the cable into both cable holders
- press cable into the cable holders

Calibrating the hoop
Adjust Reference Position calibrates the needle to the center of the hoop. Adjustments can only be made if the embroidery module as well as the oval hoop are attached, see page **43**.

Embroidery mode



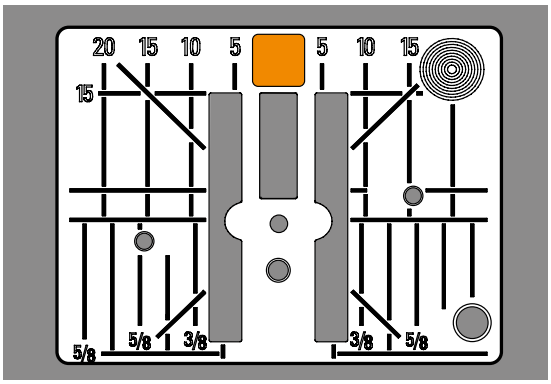
Embroidery needle
Embroidery needles (130/705 H-SUK) provide a larger eye and are slightly rounded. This avoids thread abrasion when using Rayon- and cotton embroidery thread.

– use SUK-needles
– depending on the embroidery thread use a size No. 70-SUK to No. 90-SUK needle
– use a new needle

Preparation
- attach embroidery foot No. 26 to the embroidery computer
- raise the presser foot
- raise the needle

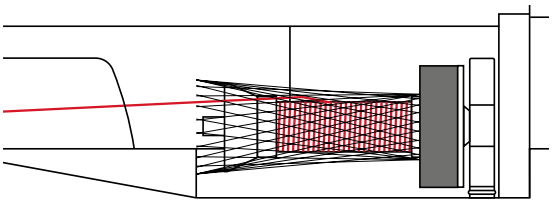
Lowering the feed dog
- press «Feed dog»-button **A**
- ► the feed dog is lowered

Straight-/CutWork stitch plate (optional accessory)



The straight-/CutWork stitch plate has a small needle hole in the needle insertion area.The small needle hole supports the fabric. This optimizes the stitching results.
- remove the standard stitch plate (see page **19**)
- replace it with the straight-/CutWork stitch plate

Threading upper and bobbin thread



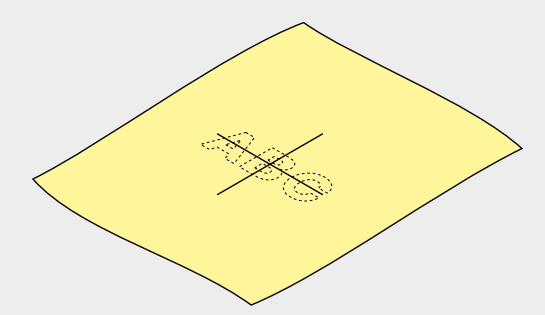
Threading upper thread
- place foam pad
- attach thread spool
- when using Rayon or slippery embroidery threads, slip the net over the upper thread spool
- ► this will feed the needle thread more evenly

Spool pin
When working with metallic or any other special threads always use the vertical spool pin and the guide eyelet for metallic and silk thread (optional accessory).

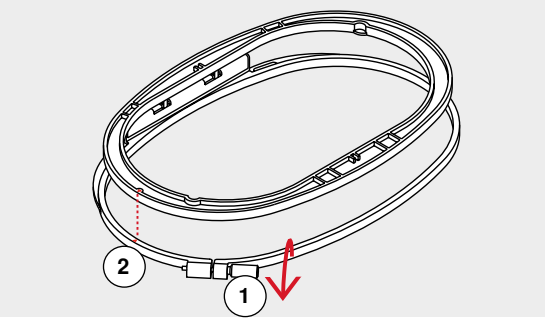
Threading bobbin thread
- thread the lower thread into the pigtail tension guide of the bobbin case

Insert the embroidery bobbin case and close the bobbin cover afterwards to activate the lower thread indicator (must be activated in the Setup-Program).

Embroidery hoop



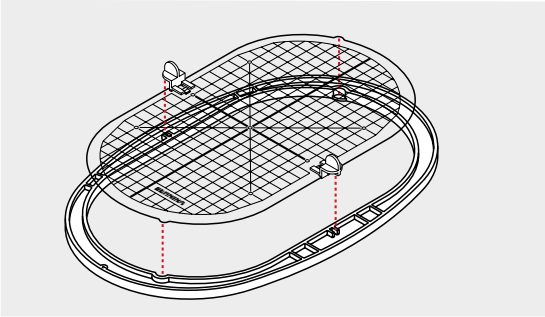
Center determination
- determine the center of the material to be embroidered
- mark the material with fabric marker or chalk



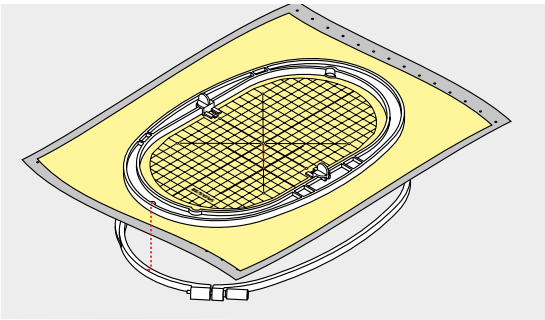
Using the embroidery hoop
- loosen the screw **1** of the outer hoop if necessary
- remove the inner hoop

Match the arrows **2** of both hoops.

The arrows are
– on the oval and medium hoop at the center front
– on the Mega Hoop (optional accessory) at the center front
– on the small hoop (optional accessory) to the right side



Embroidery template
– there is an embroidery template for each hoop
– the embroidery area is marked in 1cm squares
– the center and end point holes of the center lines are with holes
- for transferring marks to the material
- attach the embroidery template holder
- place the template in the inner hoop, so the BERNINA logo is at the front edge (by the arrows) and can be read
- ► in this position the embroidery template clicks into the inner hoop

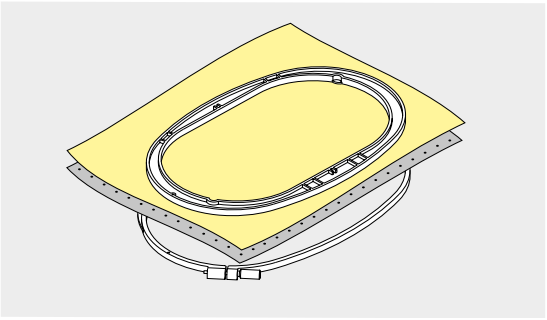


Hooping the material
- place the material under the inner hoop
- line up the marked center point on the center of the template
- place the material and inner hoop on the outer hoop

Match the arrows of both hoops.
- fit hoops into each other; ensure that the material does not move
- hoop the material to be embroidered tightly
- tighten the screw
- remove the template from the hoop by using the template holder

Stabilizer

Stabilizers



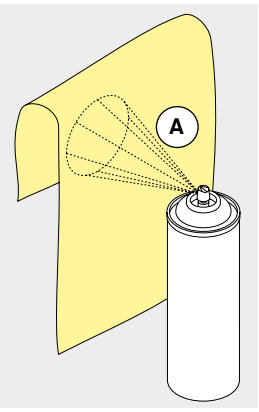
Tear-away stabilizers
– excess is easily torn away
– one or more layers can be used
– available in different weights
– for more stability, apply to the wrong side of the material with temporary adhesive spray before hooping
– carefully tear away excess stabilizer from the back of the embroidery after stitching
– motifs are not skewed
– stabilizer will remain under larger embroidered areas

Application:
For all woven materials and materials without stretch.

Cut-away stabilizers
– one or more layers can be used
– available in light and heavy weight
– for more stability, apply to the wrong side of the material with temporary adhesive spray before hooping
– carefully cut away from the back of the embroidery after stitching
– motifs are not skewed
– stabilizer will remain under larger embroidered areas

Application:
For all elastic materials.

Adhesive Spray



Please avoid using adhesive spray next to your embroidery system.
- distance **A**: 25-30cm
- use adhesive spray carefully
- spray the stabilizer and adhere to the wrong side of the material carefully smoothing material so there are no puckers

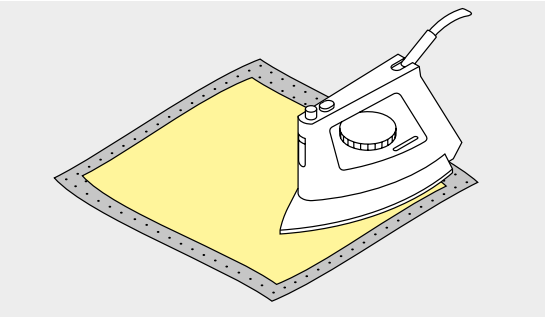
Application:
– stretch and knitted material: to retain shape
– smooth material: to avoid slipping of material layers
– appliqués can be exactly positioned
– material pieces: position material pieces on stabilizer, e.g. pocket flaps
– napped materials (i.e. velvet) that should not be clamped in the hoop because of the possibility of getting hoop marks
– to fix parts to be embroidered

Spray starch for additional stiffening
Spray starch is ideal for additional stiffening fine, soft or loosely woven materials.
- spray the area to be embroidered
- let dry; or press gently with a warm iron if necessary

Always use an additional stabilizer such as water soluble stabilizer on the wrong side of the material.

Application:
Ideal for fine, loosely woven materials, e.g. batiste, fine linen, etc.

Iron-on interfacing



Iron-on interfacings are available in a variety of weights. Iron-on interfacings should be selected to suit the material being used. Use an iron-on interfacing which is easily removable from the material.

- iron-on interfacings are pressed (fused) to the wrong side of the material

Application:
To provide body and shape for materials onto which motifs will be placed, use in conjunction with appropriate stabilizer.

Paper-backed adhesive stabilizer

- place stabilizer in hoop, paper side up
- use a pointed object (e.g. scissors) to score the paper
- remove paper to reveal the self-adhesive surface
- ► the self-adhesive surface reveals
- position the material to be embroidered on the stabilizer and smooth in place

Application:
– intended for delicate materials such as jersey or silk etc.
– for hard to hoop materials and materials such as velvets

Make sure that the adhesive residue on needle, stitch plate and hook area is removed.

Water soluble stabilizer

Water soluble stabilizer looks like plastic wrap. Dissolve stabilizer in warm water when the embroidery is complete. Water soluble stabilizers are ideal protection for materials with a thick or looped pile such as toweling. This prevents the threads from sinking into the material and prevents the material from showing through the embroidery stitches.

- place on top of the material
- place all the layers together into the embroidery hoop
- use adhesive spray to fix stabilizer if necessary
- for material with a pile, reinforce with additional, suitable stabilizer on the wrong side
- after dissolving lay the motif down flat and let dry

Application:
– ideal for toweling, velvet, bouclé etc.
– ideal for fine, sheer materials such as organdy, batiste, etc.
– for lace embroidery

For lace embroidery place one or two layers of water soluble stabilizer in hoop (as the motif is not embroidered on any material, only the thread embroidered motif is left). Embroidery motifs must be combined with short stitches otherwise the individual motifs may fall out.

Important embroidery information

Embroidery threads

A good quality thread is essential for embroidery to avoid poor stitch quality, thread breakage, etc.

Embroidery is particularly effective if you use 40wt glossy rayon or polyester embroidery threads as upper threads. They are available in a wide range of colors for beautiful embroidery.

Polyester threads
Polyester with a brilliant sheen is a hard wearing colorfast thread and has a high tensile strength which is suitable for all types of embroidery.

Rayon threads
Rayon is a soft viscose fiber with a brilliant sheen and suitable for fine, delicate embroidery, or items that will not receive excessive wear and tear.

Metallic threads
Metallic thread is a light- to medium weight thread suitable for special effects in embroidery. Reduce the speed and upper thread tension when embroidering with metallic threads.

Embroidery needle
– correct size thread must correspond with correct size needle
– replace the needle regularly

Use the vertical spool pin and attach the supplemental thread guide (optional accessory) when using guide eyelet for metallic and silk thread. A Metafil 130/705H-MET need is recommended for embroidering with metallic threads.
Adjust upper thread tension and reduce the embroidery speed.

Lower threads

Bobbin Fil (special bobbin thread)
Bobbin Fil is an especially soft and light polyester thread suitable for bobbin thread. This special bobbin thread ensures a steady thread tension and an optimal intertwining of the upper and bobbin thread.

Darning and embroidery thread
Fine mercerized cotton thread which suits for embroidering on cotton.

In most cases, bobbin thread for embroidery is either white or black. Some special cases require same thread in top and bobbin.

Choosing the embroidery motif

Simple motifs with a low stitch count are suitable for embroidery on fine material. Large-scale, densely embroidered motifs (e.g. with multiple color and embroidery direction changes) are suitable for medium and heavy weight material.

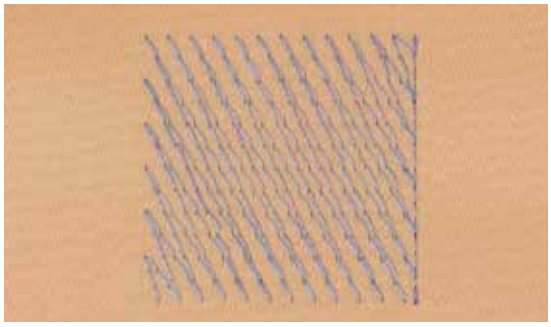
Embroidery test

Always test stitch the embroidery motif on the same type material. Use the same stabilizer as will be used on the finished project. Changes colors, stabilizer type or needle if needed to suite the motif/fabric combination.

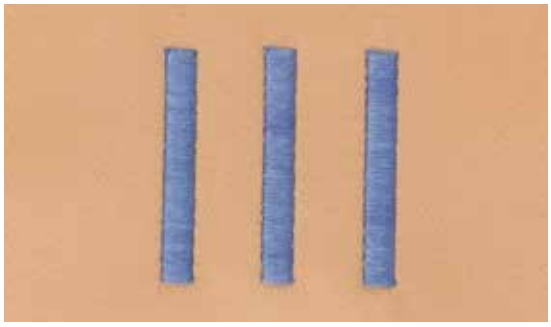
Scaling/Sizing motifs

Motifs can be scaled/sized using the on-screen icons or with the BERNINA Embroidery Software on the PC. Increasing/decreasing in a range of +/- 20 % provides the best results.

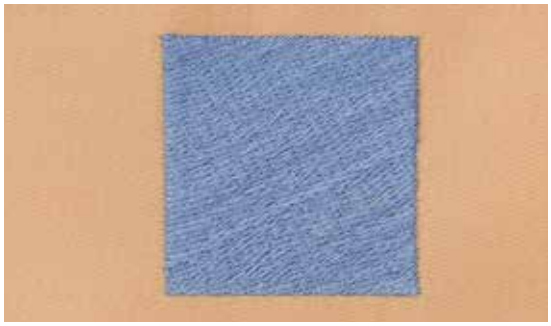
Different stitch types



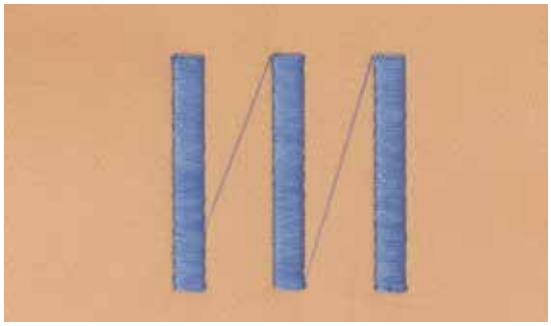
Underlay stitches
Underlay stitches are the foundation of a motif and are used to stabilize the base material and hold it in shape. They also prevent the covering stitches of the motif from sinking into the knit or the nap of the material.



Satin stitch
The needle moves left to right and vice versa. The result is a very dense, covering zig-zag stitching to fill the shape. Satin stitching fills are ideal for narrow and small shapes. Satin stitching is, however, not suitable for larger areas, since wide stitches are too loose and do not cover the fabric properly. In addition there is the danger that with too long stitches the threads could catch on something which would damage the embroidery.



Step stitch
A fill stitch with stitches of specified length sewn in rows used primarily to fill large areas quickly.

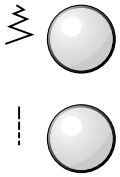


Connecting Stitches
Jump stitches which are used to get from one part of the motif to the next. Before and after the jump stitch securing stitches are sewn. Jump stitches are trimmed before the next color starts to embroider.

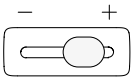
Overview «Function»-buttons embroidery computer

«Start/Stop»-button
Press «Start/Stop»-button to start or stop the embroidery computer.

«Automatic thread cutter»-button
When a color finished embroidering, upper and lower threads are automatically cut.



Stitch width and stitch length knob
The knobs provide different functions and are used to edit the motifs, e.g. altering motif size, to rotate the motif etc. A message appear to indicate the knobs must be used.

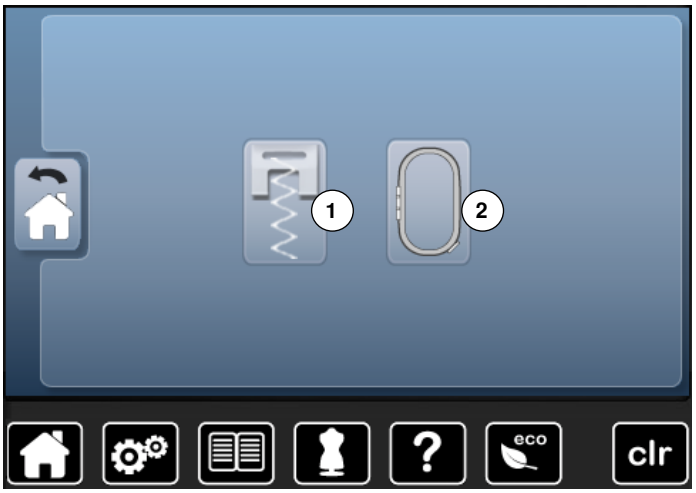


Speed control
The sewing and embroidering speed is infinitely variable with the slide.

Overview Display

Entry to Embroidery mode

- press «Home»-button



Embroidery mode
- touch «Embroidery mode»-icon **2**
- ► the «Embroidery»-display appears

Sewing mode
- press «Sewing mode»-icon **1**
- ► the «Sewing»-display appears

Embroidery computer
To select embroidery motifs from the folders «Alphabets», «Motifs», or «My Designs».

USB-Stick (optional accessory)
To select embroidery motifs which are saved on the USB stick.

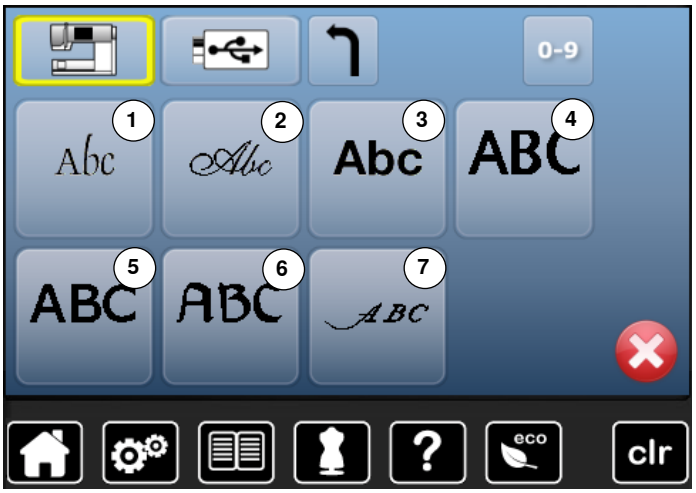
Alphabets
To select built-in alphabets.

Embroidery motifs
To select built-in embroidery motifs.

My Designs
To select saved embroidery motifs.

Embroidery Alphabet

- touch «Alphabet»-icon



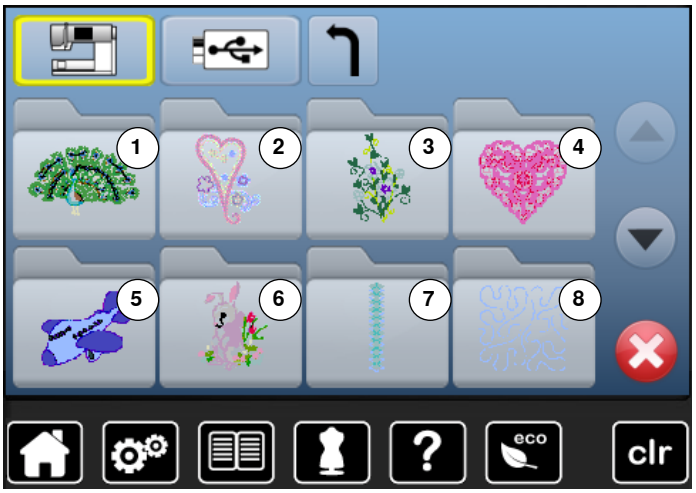
- select desired alphabet

1 King Charles
2 Anniversary
3 Swiss Block
4 London
5 Chateau
6 Guinevere
7 Emerald

Return to selection menu
Back to the «Selection»-display.

BERNINA motif

- touch «Embroidery motif»-icon



- select desired embroidery motif folder

1 Animals
2 Embellishment
3 Florals
4 Lace
5 Children
6 Seasons
7 Borders
8 Quilt

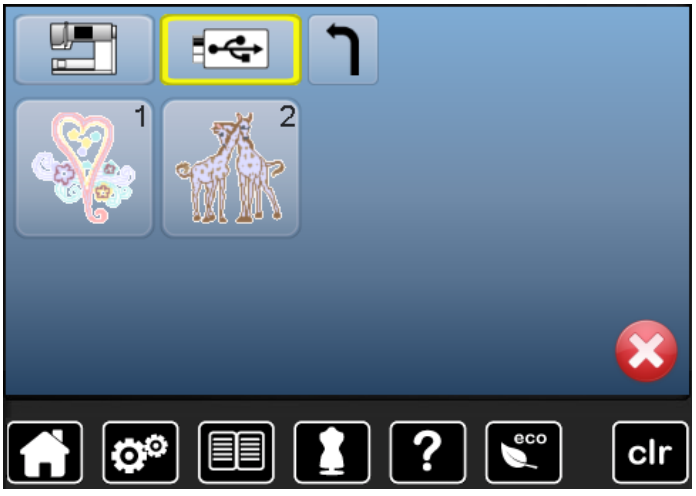
My Design

- touch «My Design»-icon

- touch the desired motif

Embroidery motif from USB-Stick (optional accessory)

- insert USB-Stick
- touch «USB-Stick»-icon

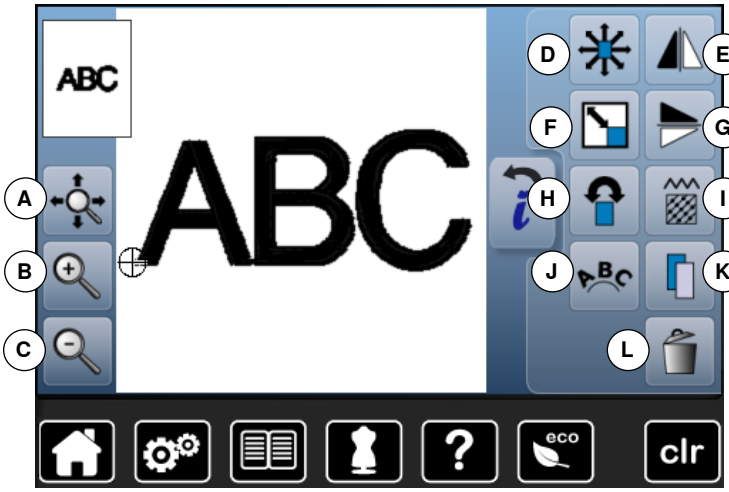


- touch the desired motif

«Edit»-display

A Selection
B Edit
C Color Numbers
D Embroidery Menu

Overview «Edit»-display



- select alphabet or motif
- touch «i»-icon

Some functions feature tips for the operating of the stitch width and stitch length knobs.

Functions
A Moving the enlarged motif within the hoop
B Zoom plus
C Zoom minus
D Move motif
E Mirror Image (Left/Right)
F Enlarging or reducing motif proportionally
G Mirror Image (down/up)
H Rotate motif
I Change Stitch Type
J Letter manipulation
K Duplicate motif
L Deleting motif

General Functions

Information
- touch the button
- ► another Display is opened

Back
- touch the button
- ► goes back to the previous Display
- ► any alterations are accepted

Confirming selection
- touch the button

Alteration/Selection is activated or confirmed.

Leaving the active Display
- touch the button
- ► the Display is closed
- ► the previous Display appears

Moving the enlarged motif within the hoop
The embroidery motif can be moved within the hoop to any direction using the touch pen or the finger directly in the Display.

Zoom plus
- touch icon 1-5x
- ► the Displayed embroidery is enlarged by one step

Zoom minus
- touch icon 1-5x
- ► the Display of the enlarged motif is reduced by one step

Moving the motif
Display of the alteration in 1/10mm.
- turn stitch width knob
- ► the motif is moved in sideways (horizontally)
- turn stitch length knob
- ► the motif is moved lengthwise (vertically)
- turn stitch width and stitch length knob
- ► the motif is moved diagonally (the same number is in both icons)

By using the finger or the touch pen the motif can also be moved to any direction.

Mirror image (Left/Right)
The motif is mirrored horizontally (Left/Right).

Altering the motif proportionally
Displayed alteration in %.
- turn stitch width knob to the right
- ► the motif is enlarged
- turn stitch width knob to the left
- ► the motif is reduced

Mirror image up/down
The motif is mirrored vertically (up/down).

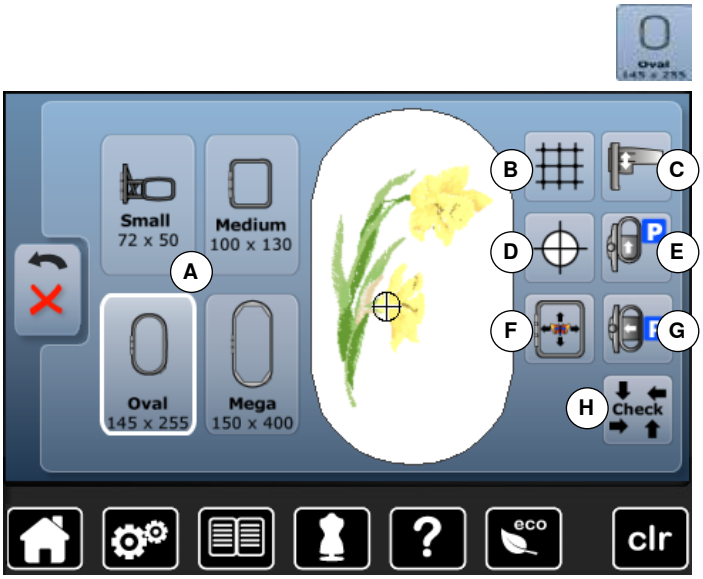
Rotate motif
Display of position in degrees (°).
- turn stitch width knob to the right
- ► the motif rotates to the right
- turn stitch width knob to the left
- ► the motif rotates to the left
- touch «+90»-icon 1-4x
- ► the motif rotates to the right in 90°-steps (0°, 90°, 180°, 270°, 360°)

Change Stitch Type
Satin stitches can be changed to step stitches (fill stitches).
Altering Stitch Density.

Letter manipulation
- turn stitch width knob
- ► the distance between the characters is altered in mm-steps
- turn stitch length knob
- ► the text is bent upwards or downwards

Duplicating motif
Active embroidery motif is duplicated.

Deleting motif
Active embroidery motif is deleted.



■ touch «Hoop size»-icon

With some functions the instruction to use the knobs appears.

Functions

A Select Hoop Menu
B Grid
C Calibrating the embroidery module
D Motif center
E Move hoop to back
F Virtual positioning
G Parking the module
H Check hoop and motif size

General Functions

Information
■ touch the button
► another Display is opened

Back
■ touch the button
► goes back to the previous Display
► any alterations are accepted

Confirm Selection
■ touch the button
Alteration/Selection is activated or confirmed.

Leaving active Display
■ touch the button
► the Display is closed
► the previous Display appears

Select hoop menu
► the optimal hoop for the motif selected is displayed
■ touch the button
► the Display with the Select Hoop and further functions appear

Grid
Grid appears to position the embroidery motif accurately.

Calibrating the embroidery module
■ touch the button
► the module is calibrated (reads the reference points)
No embroidery hoop must be attached!

Motif center
The exact motif center is indicated by the cursor. The embroidery hoop is moved until the needle is positioned exactly in the center of the embroidery motif when the function «Virtual positioning» is activated.

Move hoop to back
► the hoop moves vertically to the far back
Better access for changing the bobbin.

Virtual Positioning
Icon is inactive = if the motif is repositioned, the hoop does not move.
■ touch the button
If the motif is repositioned, the hoop simultaneously moves along with it to the new position.

Parking the embroidery module

- remove embroidery hoop
- ► the embroidery arm travels horizontally to the left to the park position
- change to the sewing mode

Sewing is possible even with the embroidery module attached.

Check hoop and motif size

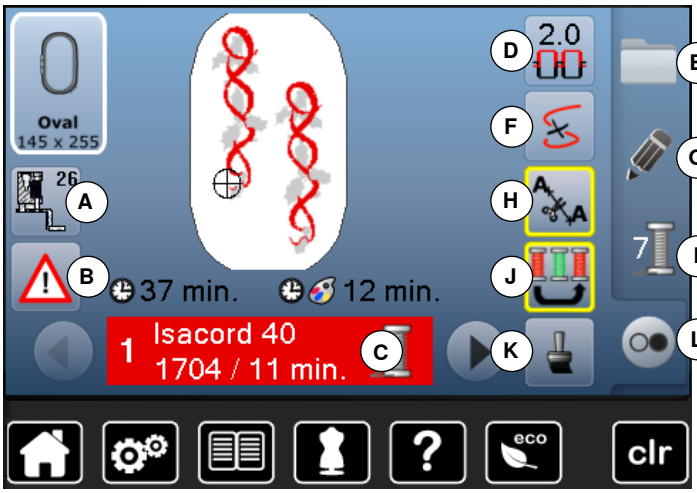
- ► the attached hoop moves vertically (lengthwise), to be read by the computer
- ► the motif size is traveled by the four arrow icons

In a design combination, the stitching area of the combination and each individual design may be checked.

- select desired motif within a combination
- touch «Back»-icon 2x
- ► the «Edit»-display appears
- ► the attached hoop is shown in the Display as well as in the «Select hoop»-icon
- ► if no hoop or a too small hoop was attached, an error message will appear

Overview Embroidery menu

- press «Embroidery menu »-button



With some functions the instruction to use the knobs appears.

Functions

A Presser foot indicator
B Security program
C Color information bar
D Upper thread tension
E Selection
F Thread breakage
G Edit
H Disengage jump stitches
I Color numbers
J Embroidering motifs according to color sequence/Reducing color changes
K Single/Multi-Color motif
L «Embroidery menu»/«Start/Stop»-button

General Functions

Information
- touch the button
- ► another Display is opened

Back
- touch the icon
- ► goes back to the previous Display
- ► any alterarions are accepted

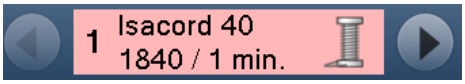
Confirm selection
- touch the button

Alteration/Selection is activated or confirmed.

Leaving the active Display
- touch the button
- ► the Display is closed
- ► the previous Display appears

Presser foot indicator

Embroidery foot No. 26 is displayed by default.
- touch the button
- ► further presser feet, such as e.g. free motion couching foot No. 43, are displayed and can be selected
- attach and select the appropriate presser foot for the project



Color information bar

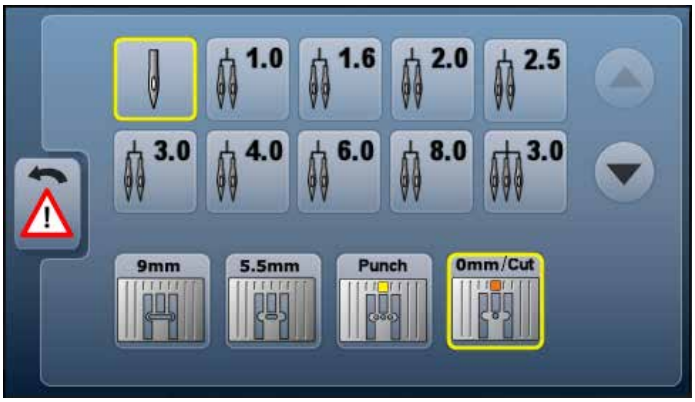
Information about the active color.
- touch arrow icons right/left
- ► the current color is changed
- ► the hoop moves to the first stitch of the current color

The active color can also be embroidered individually.

Upper thread tension

Altering Upper thread tension.
- ► the respective value is visible in the icon

Selection
- select new motif
- add motif
- save motifs
- delete motifs



Security Program
- touch the button
- touch desired «Needle»- and/or «Stitch plate»-icon
- ► if the «Security»-icon is yellow-framed, the correct stitch plate is not attached or selected

Thread breakage
In the left Display the motif is shown in the normal size.
In the right Display the motif is enlarged.

Edit
In this Display the motif can be edited.

Disengage jump stitches
By default the function is active (yellow-frame). Jump stitches are automatically cut.
- touch the button
- jump stitches must be trimmed manually

Color numbers
Display of the motif color numbers.
- touch the button
- ► Display providing the color information to the selected motif is opnened

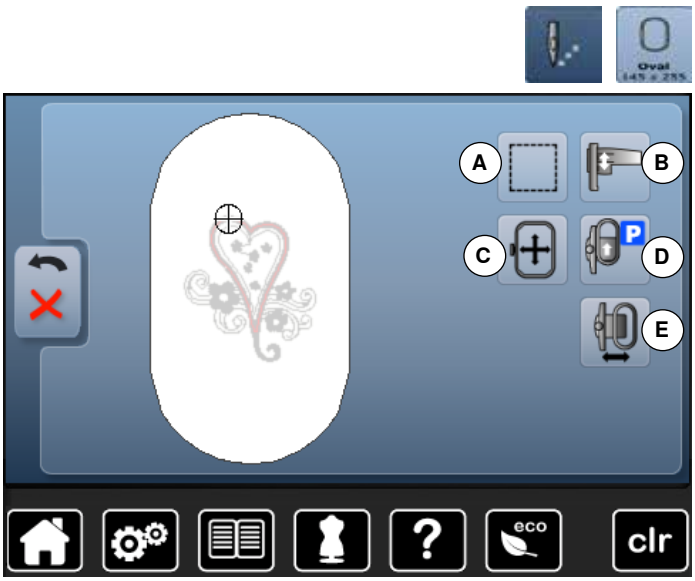
Embroidering the motif by color
With the icon deactivated, the number and sequence of colors remain as initially set.

Reducing color change
With the icon activated, the motif sections with identical colors are resequenced and color changes reduced.

Single/Multi-Color Motif
If the icon is active, the entire motif will be embroidered in one color (without stopping).
If the icon is inactive, the colors will be embroidered individually.

«Embroidery menu»/«Start/Stop»-button
The alternating blinking symbols indicate that:
- ► the embroidery Display is opened
- ► the embroidery computer is ready to embroider

The embroidery computer must be started by pressing the «Start/Stop»-button on the headframe.



With some functions the instruction to use the knobs appears.

Functions

A Basting Box
B Calibrating the embroidery module
C Moving hoop by using the knobs
D Moving Hoop to Back
E Embroidery hoop movement

General Functions

Information
- touch the button
- another Display is opened

Back
- touch the button
- Back to the previous Display
- any alterations are accepted

Confirm Selection
- touch the button

Alteration/Selection is activated or confirmed.

Leaving the active Display
- touch the button
- the Display is closed
- the previous Display appears

Basting Box
- touch the button
- the embroidery motif is outlined with a straight stitch
- touch icon again, the symbol changes
- the basting is now done along the hoop
- touch the icon again
- Basting box function is switched off

The function will remain active even after selection of a new motif.

Calibrating the embroidery module
- touch the button
- the module is calibrated (reads the reference points)

No embroidery hoop must be attached!

Moving the hoop

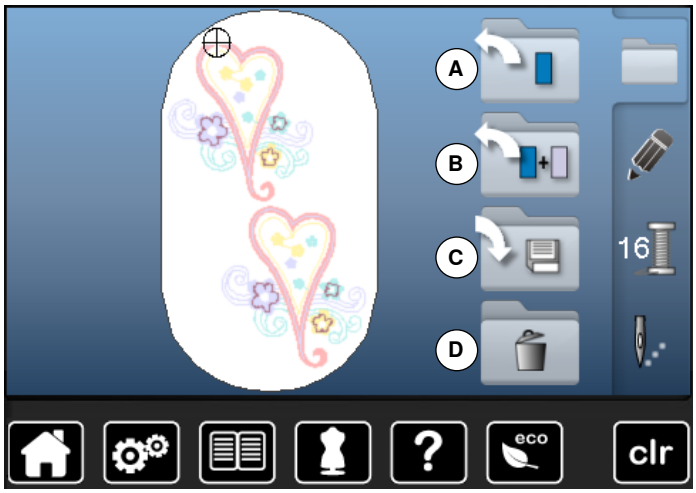
If the fabric has to be re-hooped when stitching a large embroidery motif (e.g. lettering, borders etc.), the hoop has to be moved to the last stitch of the already embroidered part with the stitch width and stitch length knob.
- the movement is displayed in the icons

Move hoop to back
- the hoop moves vertically to the far back

Better access for changing the bobbin.

Embroidery hoop movement
- the hoop moves horizontally to the center
- touch ✕
- press «Start/Stop»-button
- the hoop moves back to the previous position

- press «Selection»-button



Functions
A New motif
B Add motif
C Saving motif
D Deleting motif

New Motif
- the overview of the previous Display is opened (Alphabet, Motifs, My Designs)
- select the desired motif

Add Motif
- the overview of the previous Display is opened (Alphabet, Motifs, My Designs)
- select the desired motif

Saving Motif
- the save Display is opened

Deleting Motif
- the delete Display is opened

- press «Color number»-button

General Functions

Back
- touch the button
- goes back to the previous Display
- any changes/alterationen are accepted

Leaving active Display
- touch the button
- the Display is closed
- the previous Display appears

Changing the thread brand
- the Display showing different thread brands is opened

Selecting an embroidery motif

Various embroidery motifs from the «Alphabets», «Motifs» and «My Designs» files can be selected.

Alphabets

Selecting alphabet
- touch «Alphabet»-icon
- ► the various alphabet types are visible in the Display
- touch the desired «Alphabet»-icon

Entering/Correcting lettering
- ► the Display showing the keyboard is opened
- the «ABC»-icon (upper case) is active automatically
- select desired lettering

The space bar is at the bottom of the letter keys.
- ► letters appear in the text bar
- touch text bar **1**
- ► all entered text is deleted

Corrections
- touch the icon **2**
- ► the entered text is deleted from right to left

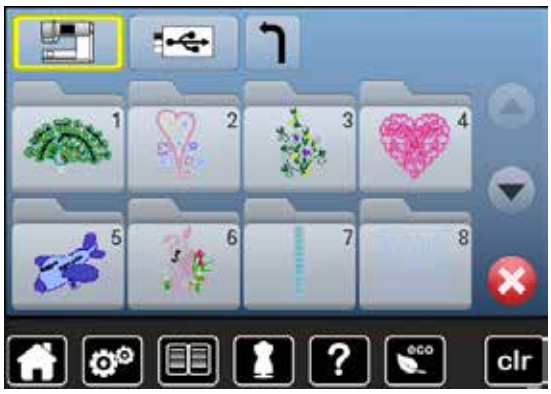
3 «ABC» all in upper case characters (standard)
4 «abc» all in lower case characters
5 «Ä À Á», «ä à á» and «@ #» upper and lower special characters
6 «1,2,3» numbers and mathematical character

If all the lettering cannot be displayed in the hoop, rotate the lettering by 90°. There is then more room for the lettering in the entire length of the embroidery hoop.
If this does not help, decrease the lettering size or reduce the number of letters.

BERNINA motifs

All BERNINA embroidery motifs can either be embroidered as-is, or changed and combined using the various functions offered by the embroidery computer.

- touch «Motif»-icon



Motif overview
The motifs are displayed in folders according to topics.
- select folder
- select desired motif

My Designs

All embroidery designs can either be embroidered as-is, or changed and combined using the various functions offered by the embroidery computer.

- touch «My Design»-icon

Motif Overview
- select the desired motif touching the icon or via «0-9»-icon

Motifs in combination with functions

To activate the functions touch the appropriate icon and make alterations with the stitch width and stitch length knobs.

Move motif

- touch «i»-icon
- touch «Move motif»-icon

- turn stitch width knob
  - the motif is moved horizontally
- turn stitch legth knob
  - the motif is moved vertically
  - the alteration is displayed in the icons in 1/10mm
- turn stitch width and stitch length knob
  - if both icons display the same number, the motif has been moved diagonally
- touch the yellow-framed icon or the «Center»-icon
  - the motif is repositioned to the center of the hoop

Enlarging or reducing motif proportionally

- touch «i»-icon
- touch «Enlarging or reducing motif proportionally»-icon

- turn stitch width knob to the right
  - the motif is enlarged
- turn stitch width knob to the left
  - the motif is reduced
  - the alteration is displayed in the icon in percent (%)
- touch yellow-framed icon
  - the size of the motif is reset to basic setting

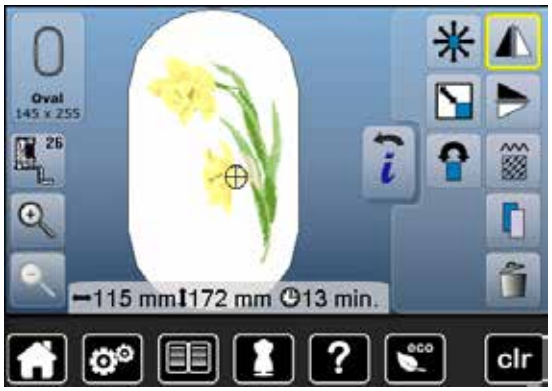
Rotate motif

- touch «i»-icon
- touch «Rotate motif»-icon

- turn stitch width knob to the right
  - the motif rotates to the right
- turn stitch width knob to the left
  - the motif rotates to the left
  - the postion is displayed in the icon in degrees (°)
- touch yellow-framed icon
  - the position of the motif is reset to basic setting (0°/360°)
- touch «+90»-icon 1-4x
  - the motif rotates in 90°-steps (0°, 90°, 180°, 270°, 360°)

Mirroring motifs

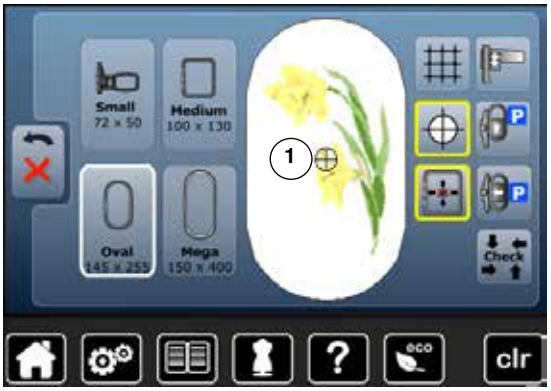
- touch «i»-icon



- touch «Mirror image left/right»-icon
- the motif will be mirrored horizontally
- touch «Mirror image up/down»-icon
- the motif will be mirrored vertically

Motif Center

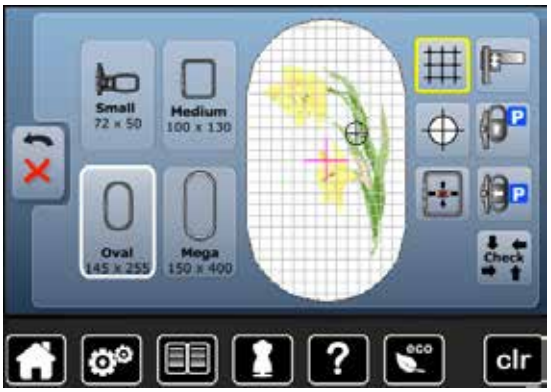
- touch «Select hoop»-icon
- touch «Motif center»-icon



- center of motif is shown in the the Display **1**
- the hoop is moved until the needle is exactly in the center of the motif
- touch the icon again
- the first stitch of the motif will be marked again in the Display

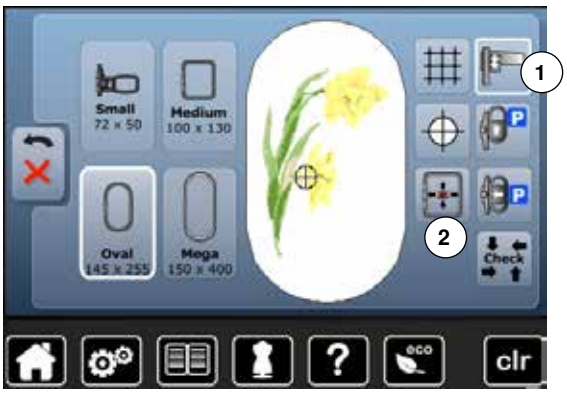
Grid

- touch «Select hoop»-icon
- touch «Grid»-icon



- a big cursor indicates the center of the hoop
- touch the icon again
- with the grid visible, it is easy to position the motif accurately
- touch the icon again
- the grid disappears

Absolute embroidery check



By using the touch pen any position within the motif can be selected directly in the «Edit»-Display.

- select and edit motif
- calibrate module if necessary **1**, see page **128**
- attach the respective hoop

The «Motif center» icon must be deactivated in order to utilize Absolute check.

- check the embroidery motif within the hoop using the touch screen pen in the «Edit»-Display
- select any point in the motif with the touch pen
  - the cursor (marking the needle position) moves to the selected area
  - if the icon «Virtual positioning» **2** is activated (yellow-framed), the hoop is moved to position the needle over the selected area
- the icon «Virtual Positioning» appears only after the hoop has been read by the «Check»-function (touch «Check»-icon)

> If the thread breaks, the touch pen can also be placed on the area of the Display where the thread broke. The hoop moves to that area.

- touch «Select hoop»-icon
- touch «Check»-icon
  - the hoop size is read = the hoop moves

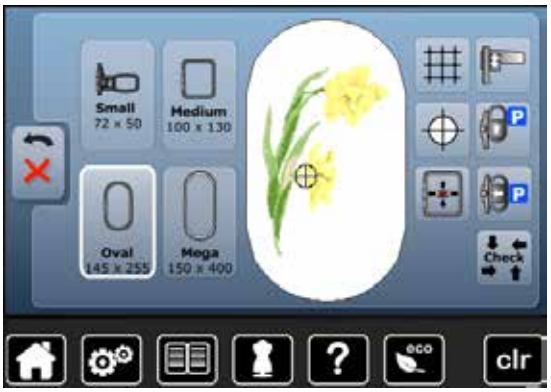
Checking the motif size

The «Check»-function reads the attached hoop size and stitching area:

- select the four corners using the arrow icons
- touch «Motif center»-icon
  - the needle moves to the center position of the motif
- touch «Back»-icon
  - the Display is closed
  - if no hoop or a too small hoop was attached, an error message will appear

Select Hoop

- select «Select hoop»-icon



For best embroidery results always use the smallest hoop possible for the motif.

- select desired hoop
  - the selected hoop is highlighted in white
- touch «Back»-icon
  - the Display is closed
  - the motif appears in the desired hoop

Zoom

- touch «i»-icon
- touch «Zoom+»-icon 1-5x

► the motif image is enlarged by one step

- touch «Zoom-»-icon 1-5x

► the enlarged motif image is rescaled by one step

Moving the enlarged Motif

- touch «Move»-icon

Icon inactive:
- the motif can be moved to any position **within** the hoop directly in the Display by using the touch pen or the finger

Icon active (yellow-framed):
- the motif can be moved to any position **along with** the hoop directly in the Display by using the touch pen or the finger

Motif size and embroidery time

- touch «i»-icon

Width and height of the embroidery motif is displayed in millimeters (mm). The embroidery time is displayed in minutes.

Combinations

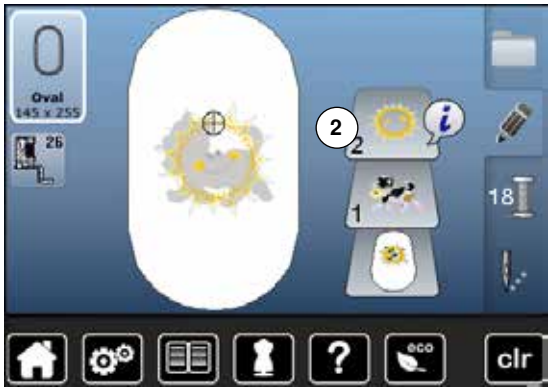
Creating combinations

- select the desired motif from the selection menu of the embroidery computer

- the motif **1** appears in the «Edit»-display

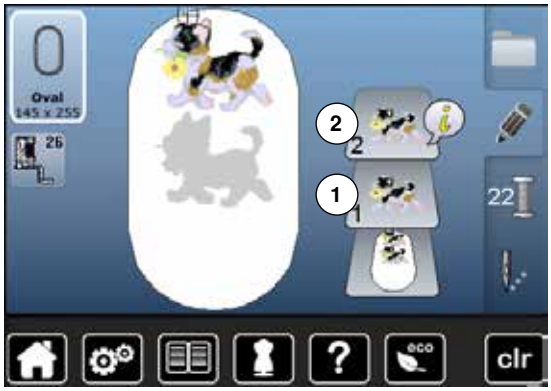
Adding Motif

- press «Selection»-button
- touch «Add motif»-icon
- select the desired motif or alphabet character from the selection menu
- the selected motif **2** is added



Duplicating a motif

- touch «i»-icon
- touch «Duplicate motif»-icon
- the active motif **1** is duplicated **2**



Duplicating a combination

- activate a combination **1**
- touch «i»-icon
- touch «Duplicate motif»-icon
- ► the active combination **2+3** is duplicated **4**

Within in a duplicated combination the single motifs cannot be selected individually, contrary to the initial combination.

Lettering

Lettering (e.g. words) can be combined with other alphabet characters or motifs. The individual words (e.g. Made to create) are individually combined by the line and positioned individually.

Combining

- touch «Alphabet»-icon
- ► the various alphabets appear in the Display
- select desired «Alphabet»-icon
- ► the Display with the keyboard is opened
- e.g. enter Made to

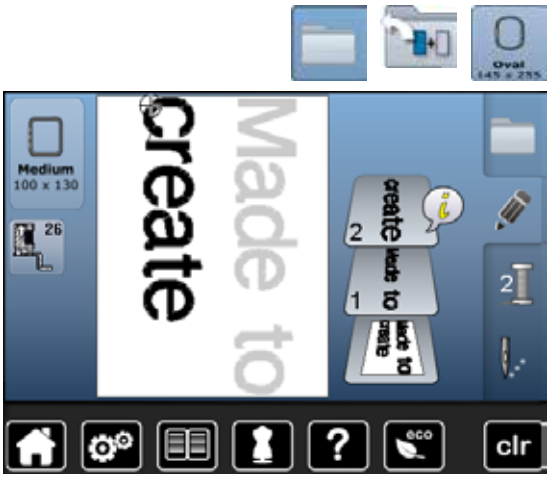
Select characters using the Lower/Upper Case icon.

- place the space with the bar under the keyboard
- confirm combined lettering with ✔
- ► lettering appears in the «Edit»-display

Positioning

- touch «Select hoop»-icon
- select medium hoop
- touch «Back»-icon
- touch «i»-icon
- touch «Rotate motif»-icon
- touch «+90»-icon
- ► the text is rotated by 90°
- ► touch «Back»-icon
- touch «Move motif»-icon
- position the text in the Display using the knobs, the touch pen or the finger

The outline of the hoop is highlighted in red if a stitch of the motif is positioned outside the embroidery area.



Further text lines

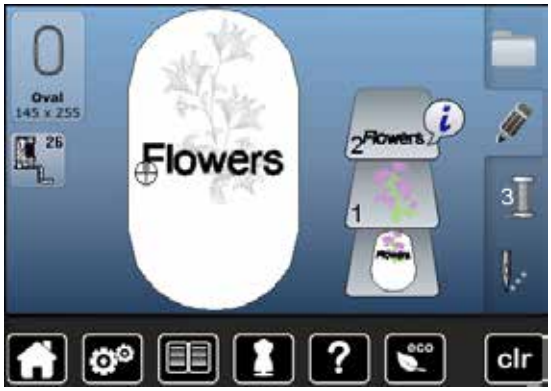
- press «Selection»-button
- touch «Add motif»-icon

Combine and position individually the rest of the text.

- touch «Select hoop»-icon
- activate the grid, see page **138**
- ► use the grid lines to easily and accurately position lines of text

Motifs and lettering

Depending on the application, the characters are added after an embroidery motif is selected or the characters are combined first and then added to the motif (e.g. embellished lettering).



Combining

- select desired motif
- ► the motif appears in the «Edit»-display
- press «Selection»-button
- touch «Add motif»-icon
- touch yellow-framed «Embroidery computer»-icon
- ► selection menu appears
- select desired alphabet
- ► display with the keyboard is opened
- enter text, e.g. Flowers

Select characters using the «Lower/Upper Case»-icon.

- confirm the combined lettering with ✔
- ► the text appears above the motif in the «Edit»-display

Adjusting text to motif

- touch «i»-icon
- touch «Rescale motif»-icon
- adjust text to motif
- touch «Back»-icon
- touch «Move motif»-icon
- position the text as desired

Lettering Manipulation

- touch «i»-icon
- touch «Letter manipulation»-icon
- turn the stitch length knob to the left
- ► the text is bent downwards

Altering motif features

- touch «i»-icon
- touch «Alter motif features»-icon

To alter stitch type.
To alter the stitch density.

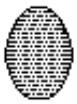
- touch «Alter stitch type»-icon
- ► the basic setting of the step stitch is activated

If the motif is enlarged substantially, long satin stitches occur. This can result in tunneling of the material. In this case, it is recommended to switch to a step stitch fill.

Fill stitch types

The embroidery motifs are filled with satin or step stitches.

Satin stitch
The needle swings from one side to the other.



Step stitch (fill stitch)
The needle stitches in straight rows at regular intervals.

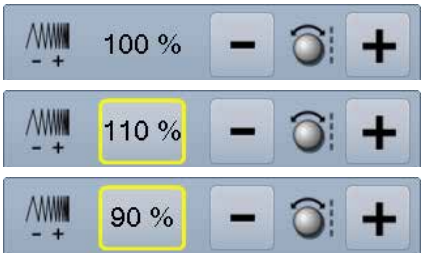
- touch «Change stitch type»-icon

Change stitch type
The satin stitch fill changes to a maximum of 8mm long step stitches fill (basic setting).
- touch «+»/«-»-icon or turn stitch width knob to the left or to the right
  - maximum step stitch length is increased/decreased

The maximum stitch length is 12.7mm and the minimum 0.5mm.
- ✔ touch the button
  - chosen step stitch length is saved and the «Edit»-display appears

Back to basic setting
- touch yellow-framed icon
  - the basic setting (8mm) is activated

Back to Satin stitch
- touch «Change stitch type»-icon again
  - the motif is filled with satin stitches again

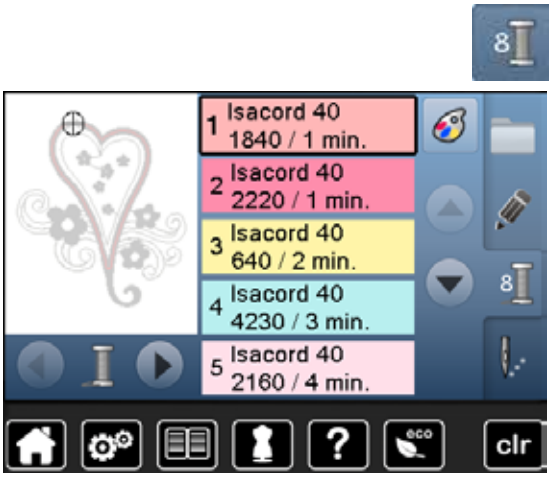


Altering Stitch Density
- touch «+»/«-»-icon or turn stitch length knob to the left or to the right
  - the stitch density is increased (more stitches)/decreased (less stitches)

The maximum stitch density is 300% and the minimum 25%.
- ✔ touch the button
  - chosen stitch density is saved and «Edit»-display appears

Back to basic setting
- touch yellow-framed icon
  - the basic setting (100%) of the motif is activated again

Motif colors



Changing motif colors

- touch «Color number»-icon in the Display
- scroll with the arrow icons, if necessary, until the color to be changed appears
- select the color to be changed (e.g. 1)

- touch «Thread color»-icon
- scroll with the arrow icons until the desired color appears
- select the desired color or
- touch «0-9»-icon and
- enter the color number via the keyboard
- select color icon
- ► the new color is reallocated
- ► the altered color is displayed

Changing the thread brand

- touch «Thread color»-icon
- scroll with the arrow icons left or right until the desired thread brand appears
- touch «Thread brand»-icon
- ► the thread brand in the Display changes and the new thread details appear
- touch «Back»-icon
- ► the altered thread details are displayed

Different thread brands can be assigned to the motif.

- scroll to the desired thread brand
- do **not** touch icon
- scroll to the desired color
- touch the icon

Embroidering the motif by color

- press «Embroidery menu»-button
- ► «Reduce color changes»-icon is inactive (standard, gray)

The colors of a motif are not reduced, the embroidery sequence remains as set originally. The number of color changes **1** remains as it is.

Reducing color changes

- press «Embroidery menu»-button
- touch «Reduce color changes»-icon

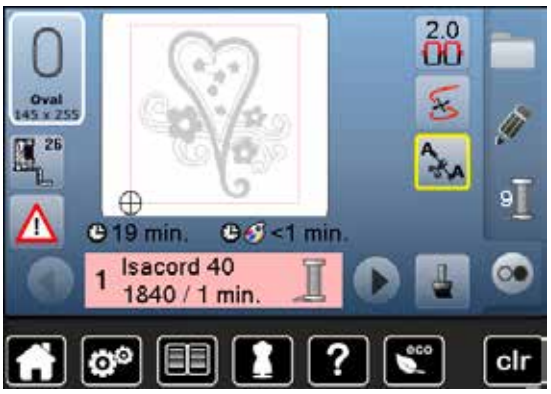
Identical colors are resequenced and combined to form «color blocks». This reduces the number of color changes **2** to a minimum.

Embroidering motifs in one color

- press «Embroidery menu»-button
- touch «Single/Multi-Color Motif»-icon
- ► the function is activated
- ► the embroidery computer embroiders the complete motif and stops when finished

Embroidering lettering in multi colors
Lettering is always displayed in one color («Single/Multi-Color Motif»-icon is not available). To embroider each letter of a word or each word of a word combination in a different color, each letter or word must be programmed and placed separately.
- ► the embroidery computer stops after each letter or word
- ■ the thread color can be changed
- ► the Embroidery time for each color is displayed

Embroidering lettering in one color
- ■ touch the now available «Single/Multi-Color Motif»-icon
- ► the complete lettering combination is embroidered in one color



Basting box
- ■ press the «Embroidery menu»-button
- ■ touch the «Select hoop»-icon
- ■ touch «Basting box»-icon

The embroidery motif is outlined with a straight stitch.
This serves as an additional anchoring of the project so that the fabric and stabilizer are adhered.

- ■ touch the icon again
- ► the symbol changes

The basting is now done along the hoop.
- ■ touch the icon again
- ► the basting is deactivated

This function remains active even if a new motif is selected.

Saving Motifs

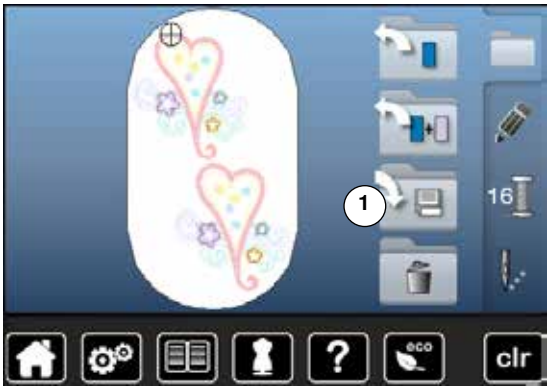
Embroidery motifs from the embroidery computer, the USB stick, embroidery cards or designs created in the BERNINA Embroidery Software can be combined, re-arranged and altered in different ways, then saved.
Embroidery motifs can either be saved in the embroidery computer memory or on an USB Stick.

In a saved stitch combination the individual stitch patterns can be altered after being selected.
Embroidery motifs which were altered in size and saved are regarded as new motifs when they are recalled. That is why all percentages say 100%, and the former alteration can no longer be seen.

Embroidery computer memory

- select desired motif
- alter or combine if necessary

- press «Selection»-button
- touch «Save»-icon **1**



The motif to be saved is displayed in a yellow frame.

- «Embroidery computer»-icon is active
- the «My Designs» folder is opened automatically
- the system memory capacity (free capacity) is displayed in percent (%) in the green bar

- select the motif to be saved

- the embroidery motif is saved in numerical order in the «My Designs» folder
- the «Edit»-display appears again

USB stick

The motif to be saved is displayed in a yellow frame.

- insert USB-Stick
- touch «USB-Stick»-icon
- ► the system memory capacity (free capacity) is shown in percentage (%) in the green bar
- select the motif to be saved
- ► the motif is saved on the stick

Empty USB sticks are available as optional accessory at the BERNINA-dealer.
USB sticks produced by any other manufacturers may not be supported; especially USB sticks with large storage capacity.

Overwriting motifs

Saved motifs in the memory or on an USB Stick can be overwritten directly by another motif.

- select desired motif

- insert BERNINA USB-Stick
- press «Selection»-button
- touch «Save»-icon

The motif to be saved is displayed in a yellow frame.

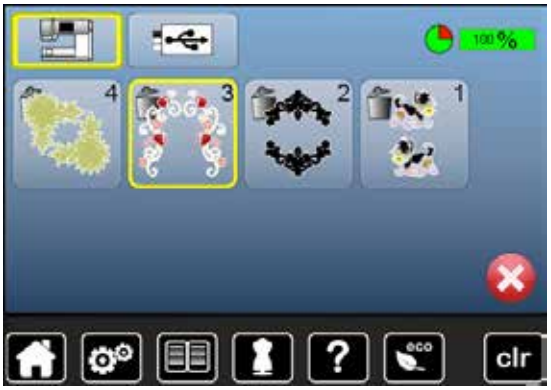
- touch «Embroidery computer»-icon or «USB-Stick»-icon
- select the motif to be overwritten

- confirm with ✔
- ► the motif is now saved at the previously selected position

Deleting saved single motif

- insert USB-Stick
- touch «USB-Stick»-icon or
- touch «Embroidery computer»-icon or
- touch «My Design»-icon

- touch «Delete»-icon **1**



- select the motif to be deleted

- confirm with ✔
- ► the motif is deleted

Cancelling deleting

- touch ✘
- ► the deleting is cancelled, the previous screen appears

Deleting all saved motifs

It is possible to delete the content of the folder «My Designs» or the USB stick all at once.

- press «Setup»-button
- touch «Basic settings»-icon

- touch «Delete user data»-icon

When embroidering there are two options to choose from:

1 My Designs

2 USB stick (the stick must be inserted)

- touch the button of which the data should be deleted

- confirm with ✓
- ► the data is deleted

Cancelling deleting

- touch ✗
- ► the deleting is cancelled, the previous screen appears

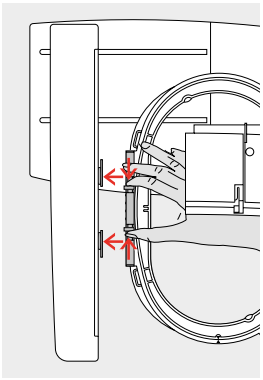
Starting to embroider

Select hoop

- select motif
  - ► the selected motif is displayed in the optimal (the smallest) hoop
  - ► the «Select hoop»-icon displays the recommended hoop
- attach the recommended hoop

Attaching the embroidery hoop

- raise needle and embroidery foot
- hold the hoop with the right side of the fabric up and the attaching mechanism to the left



Attach the hoop to the embroidery arm

- guide the hoop underneath the embroidery foot
- press the attaching mechanisms of the hoop toward each other
- position the center points of the hoop (small attachment clamps) over the bracket of the embroidery arm
- press down until it clicks in position
- release the attaching mechanism of the hoop

Removing the hoop

- press both of the attaching mechanisms of the hoop toward each other
- lift the hoop up to remove

- press «Embroidery menu»-button or «Start/Stop»-button on the headframe
  - ► the hoop moves
  - ► the hoop is read

As soon the «Embroidery menu»-button has been pressed, made alterationen will not be visible anymore when going back to the «Edit»-display. The «Information»-icon turns blue again, the function icons are no longer yellow-framed and the setting is at 100%.

Embroidery menu

- embroidery menu is opened
- the motif is ready for embroidering

Embroidering using the «Start/Stop»-button on the headframe

- press the «Start/Stop»-button on the headframe, until the embroidery computer starts
- the embroidery computer sews approximately 7 stitches and stops automatically
- a Display indicates that the thread tail has to be cut at the beginning of the motif
- raise the presser foot
- cut the thread tail at the beginning of motif
- lower the presser foot
- press the «Start/Stop»-button on the headframe and continue embroidering

Interrupting the process

- press «Start/Stop»-button on the headframe
- the embroidery computer stops

Completing the color

- press «Start/Stop»-button on the headframe
- the embroidery computer embroiders all the sections in the color activated
- the embroidery computer stops automatically when complete
- both threads are automatically cut

Changing color

- the embroidery computer switches automatically to the next color
- change color of the upper thread accordingly
- embroider with the new color

Embroidering Display

- after starting the motif the embroidering Display appears

Embroidering with foot control

When embroidering with the foot control always keep it depressed.
- press the foot control
- the embroidery computer sews approximately 7 stitches and stops automatically
- a Display indicates that the thread end has to be cut after the start of embroidering
- release the foot control
- raise the presser foot
- cut the thread tail at the beginning of motif
- lower the presser foot
- press the foot control and continue embroidering

Interrupting with the foot control
- release the foot control
- the sewing computer stops

Completing the color
- press the foot control
- the embroidery computer embroiders all the sections in the color activated
- the embroidery computer stops automatically when complete
- both threads are automatically cut

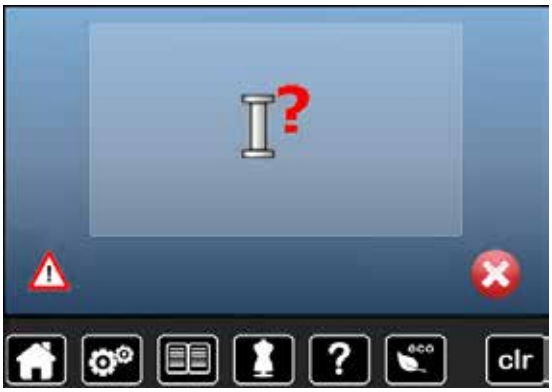
Changing color
- the emboidery computer switches automatically to the next color
- change color of the upper thread accordingly
- embroider with the new color

Embroidering display
- after starting the motif the embroidering display appears

Thread breakage when embroidering

The upper or lower thread may occasionally run out or break when you are embroidering. When this happens, the embroidery computer stops automatically, provided that the thread and bobbin indicators are activated in the setup program.

Upper or lower thread breaks



- ► the embroidery computer stops automatically
- ► an animation is displayed
- ■ check upper thread
- ■ rethread needle
- ■ check lower thread
- ■ refill or rethread bobbin

Embroidery sequence control when thread breaks

- ■ touch «Thread breakage»-icon

In the left portion of the Display the motif is shown in original size and in the right protion enlarged. This makes it easier to check the embroidery sequence.

- ► the message to operate the stitch width and stitch length knobs appears
- ■ turn the knobs to the left or to the right
- ► the hoop moves along the embroidery sequence backwards or forwards
- ■ turn the stitch width knob slowly
- ► the hoop is moved stitch by stitch
- ■ turn the stitch length knob slowly
- ► the hoop is moved in big steps
- ► the number in the yellow-framed icon indicates the current position within the motif by stitch number
- ■ via the «0-9»-icon a position can be entered directly
- ■ position the needle back far enough so that it will resume stitching several stitches before the thread breakage

Returning to original position

- ■ touch «Back»-icon
- ► the Display is closed

Resuming embroidering

- ■ press «Start/Stop»-button or the foot control

Cleaning

ATTENTION!
Disconnect plug from the socket before cleaning or lubricating!
Never use alcohol, petrol, white spirit or any type of solvent to clean the sewing computer!

Cleaning the Display and the sewing computer
Wipe with a soft, damp cloth.

Feed dog area
Clean the sewing computer after every use - remove any lint from under the stitch plate and in the hook area.
- turn power switch to «0» (off)
- remove plug from electrical outlet
- remove presser foot and needle
- open the bobbin door
- press the stitch plate down at the right back corner until it flips up
- remove the stitch plate
- clean the area with the lint brush
- replace the stitch plate

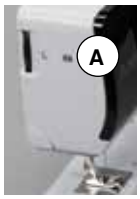
Cleaning the hook
- turn power switch to «0» (off)
- remove plug from electrical outlet
- remove bobbin case
- clean the hook race with a lint brush, do not use sharp instruments for cleaning
- insert the bobbin case

Lubricating
- turn power switch to «0» (off)
- remove plug from electrical outlet
- squeeze 1 or 2 drops of BERNINA oil into the hook race
- turn power switch to «I» (on)
- run the sewing computer for a short time (without thread)
  - ► so sewing project is not soiled

Troubleshooting

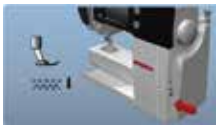
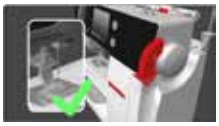
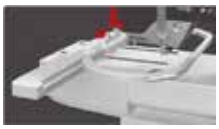
In most cases you will be able to identify and remedy faults by checking the following.

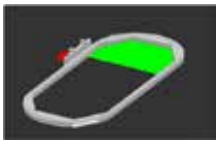
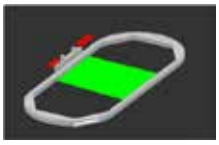
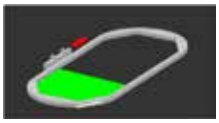
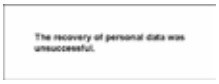
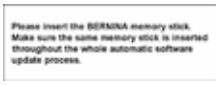
Check if:
- the upper and lower threads are threaded correctly
- the needle is inserted correctly
- the needle size is correct - check the needle/thread table page **24**
- the needle tip and shaft are undamaged
- the sewing computer is clean - brush out any thread lint
- the hook race is clean
- any threads are trapped between the tension discs or under the bobbin case spring

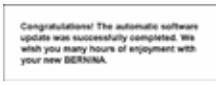
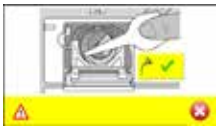
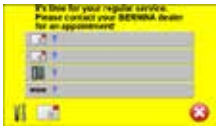
Fault	Cause	Repair
Uneven stitch formation	– Upper thread too tight/too slack – Needle blunt or bent – Poor quality needle – Poor quality thread – Needle/thread combination is incorrect – Incorrectly threaded	■ reduce/increase upper thread tension ■ use new BERNINA quality needle ■ use new BERNINA quality needle ■ use quality thread (Isacord, Mettler, Gütermann etc.) ■ match the needle to the thread size ■ check upper and lower thread
Skipped stitches	– Incorrect needle system – Needle bent or blunt – Poor quality needle – Needle inserted incorrectly – Incorrect needle point	■ use needle system 130/705H ■ use new BERNINA quality needle ■ use new BERNINA quality needle ■ insert needle as far up as it will go ■ match the needle point to the texture of the material
Faulty stitching	– Remnants of thread between the tension discs – Incorrectly threaded – Remnants of thread under the bobbin case spring	■ fold a piece of thin material and slide the folded edge (not the raw edges) between the thread tension discs, moving the material back and forth to clean the right and left side of the thread tension ■ check upper and lower thread ■ carefully remove any thread remnants from under the spring
Thread is caught in the area of the take-up lever	– Upper thread breaks 	If the upper thread breaks and the thread is trapped in the area of the take-up lever, proceed as follows: ■ turn power switch to «0» (off) ■ remove the screw **A** on the headframe with the angular Torx wrench ■ turn headframe cover slightly to the left, then slide it upwards and remove ■ remove remnants of thread ■ attach headframe and retighten screw
Upper thread breaks	– Upper thread tension too tight – Incorrectly threaded – Poor-quality or old thread – Stitch plate or hook tip damaged	■ reduce upper thread tension ■ check upper threading ■ use quality thread (Isacord, Mettler, Gütermann etc.) ■ take the sewing computer to the nearest authorized BERNINA dealer
Lower thread breaks	– Lower thread tension too tight – Stitch hole in the stitch plate has been damaged – Needle blunt or bent	■ increase the upper thread tension ■ take the sewing computer to the nearest authorized BERNINA dealer ■ use new needle
Needle breaks	– Needle not correctly inserted – Fabric was pulled – Fabric was pushed when using thick material – Poor-quality thread, unevenly wound or knotted	■ tighten the needle clamp screw ■ do not pull the fabric during sewing ■ use the correct presser foot for thick material (e.g. Jeans foot No. 8) use height compensating tool when sewing over a thick seam ■ use quality thread (Isacord, Mettler, Gütermann etc.)

Fault	Cause	Repair
Stitch width not adjustable	– Setting activated in the security program	■ deactivate setting
Display is inactive	– Calibration data incorrect – ECO-function active	■ re-calibrate the Display in the Setup Program ■ turn off ECO function
Sewing-/ Embroidery computer	– Sewing computer fails to run or runs slowly – Turn power switch to «0» (off)	■ alter the speed control ■ place the sewing computer in a warm room one hour before use ■ turn the power switch to «I» (on) ■ take the sewing computer to the nearest authorized BERNINA dealer
Upper thread indicator does not respond	– Not activated in the Setup Program	■ activate in the Setup Program
Lower thread indicator does not respond	– Not activated in the Setup Program	■ activate in the Setup Program
Lower thread indicator reacts	– Thread used/broken – Bobbin inserted incorrectly – Brake spring is missing	■ wind thread and thread ■ insert bobbin correctly ■ insert brake spring into bobbin case
Update error	– USB stick is not recognized – Update process is blocked (hourglass stays on display) – Update-data aren't identified	■ use a BERNINA USB stick ■ remove the stick and turn the sewing computer off and on again. Proceed with the update as indicated by the message ■ don't save update-data in a folder ■ unzip update-data
LED sewing light do not light up	– LED defective – deactivated in the Setup Program	■ take the sewing-/embroidery computer to the nearest authorized BERNINA dealer ■ activate in the Setup Program

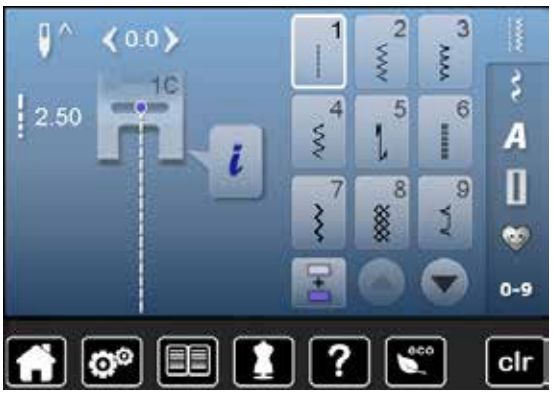
General	Explanation	Repair Messages
Sewing-/ Embroidery computer 	– Deleting or overwriting data, e.g. drawers	■ confirm with ✔ or cancel with ✘
	– Stitch number not known in direct entry	■ check command entered and enter a new number
	– Stitch selection not possible in the combination mode	■ make another selection
	– Raise the presser foot	■ the presser foot is raised
	– Lower the presser foot	■ the presser foot is lowered

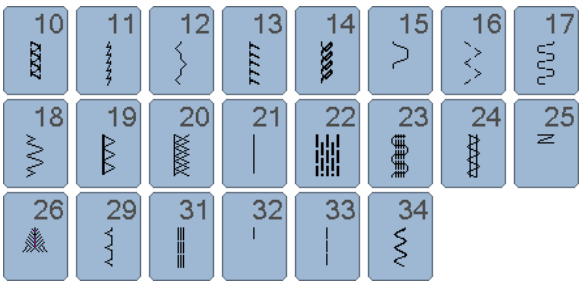
General	Explanation	Repair Messages
	– Lower feed dog	■ press the «Feed dog»-button. The feed dog is lowered
	– Incorrect needle for the stitch plate selected	■ check settings in securing program
	– Needle is not in the highest position	■ turn handwheel
	– Upper thread used up	■ attach new upper thread spool and thread
	– Lower thread indicator has reacted	■ check lower thread and wind if necessary
	– Main motor is not running	■ check hook system. Remove any thread lint from the hook area/bobbin case
	– Needle position doesn‘t correspond to center of hoop	– Adjust according to User Instructions page **43**
	– Attaching the Module	■ position the module correctly to the sewing computer. Plug the cable in the outlet provided ■ an animation shows that emboidery software is loaded
	– No embroidery hoop attached	■ attach embroidery hoop
	– Embroidery hoop attached	■ remove embroidery hoop

General	Explanation	Repair Messages
	– Mega-Hoop up	■ move the Mega-Hoop to upper (1) position
	– Mega-Hoop center	■ move the Mega-Hoop to middle (2) position
	– Mega-Hoop down	■ move the Mega-Hoop to lower (3) position
	– Embroidery motif is partly outside the hoop	■ re-position the embroidery motif. The area within the hoop can be embroidered
	– Embroidery motif is too large	■ reduce the motif size or attach a bigger hoop. The area within the hoop can be embroidered
	– Less free space on the USB stick	■ delete data from USB stick
	– No personal data available on the USB stick	■ check that the USB stick is inserted correctly and re-start the sewing computer
	– During the update process personal data was not saved on the USB stick	■ the software was correctly updated. Personal data could not be recovered
 Please insert the BERNINA memory stick. Make sure the same memory stick is inserted throughout the whole automatic software update process.	– BERNINA USB stick is not inserted	■ insert BERNINA USB stick and do not remove during the update process
	– New SW Version is not available on the stick	■ save the new SW Version on the BERNINA USB stick and start the update again

General	Explanation	Repair Messages
	– Update successful	■ the sewing-/embroidery computer has been provided with the latest software version
	– The sewing computer must be cleaned/lubricated	■ this notification will appear after approx. 180,000 stitches. After cleaning/oiling clear the Display by touching ✔. The Display can be cleared temporarily by touching ✕, but will appear again when restarting the sewing computer. After clearing with «ESC» for the third time, the cleaning notification will only appear again after a further approx. 180,000 stitches
	– It is time for the regular maintenance. Please contact your BERNINA dealer or your BERNINA service address	■ the sewing-/embroidery computer must be taken to an authorised BERNINA dealer/servicing shop. The message appears after approx. 2,000,000 stitches. Once the servicing has been performed by an authorised BERNINA dealer/ servicing shop, the stitch counter is reset to «0» (zero) and the message disappears. The message can be deleted temporarily by touching the field «ESC» but will reappear when the sewing-/embroidery computer is next restarted. After the third deletion with ✕ the message will not reappear until the next reminder at approx. 4,000,000 stitches (in total). Having your sewing/embroidery computer cleaned and serviced properly at the appropriate times ensures its proper functioning and long service life. Failure to do so may adversely affect service life and limit the guarantee. The charge for servicing is nationally regulated – consult your dealer or servicing shop for details

Practical stitches

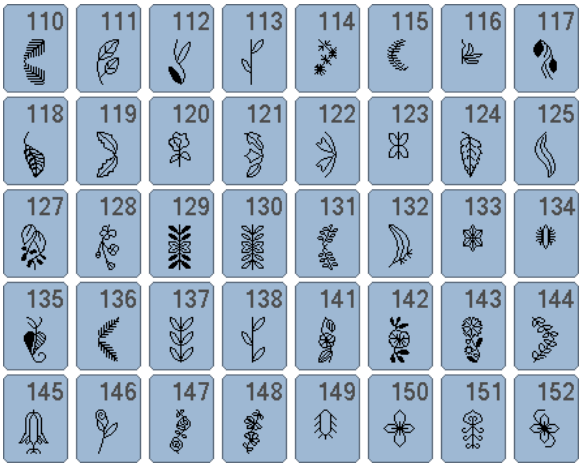




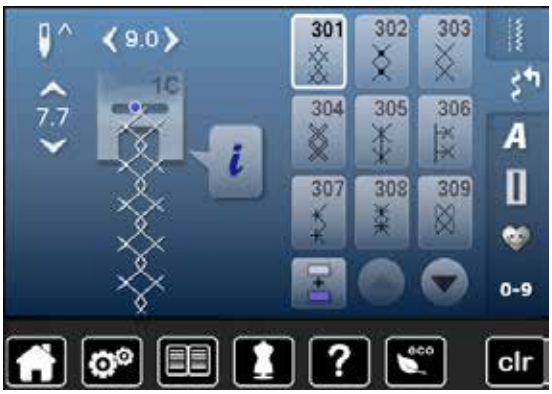
Buttonholes

Decorative stitches

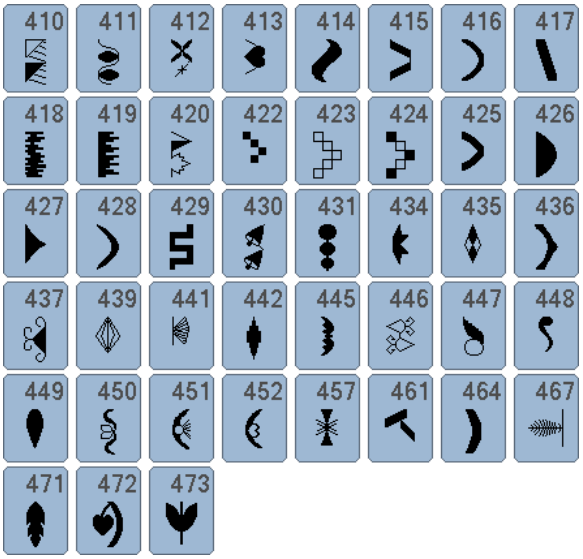
Florals



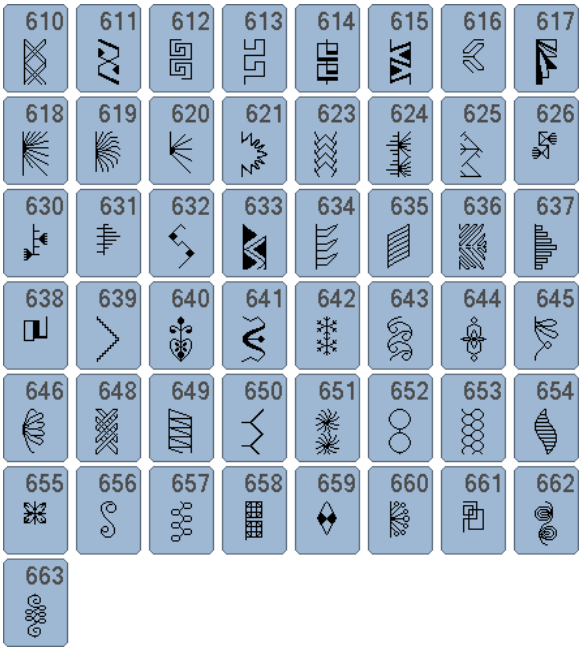
Cross stitches



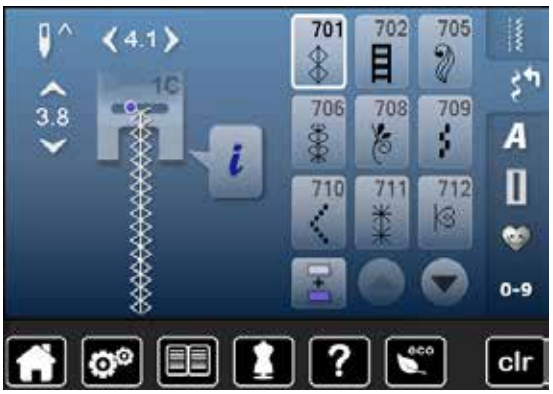
Satin stitches

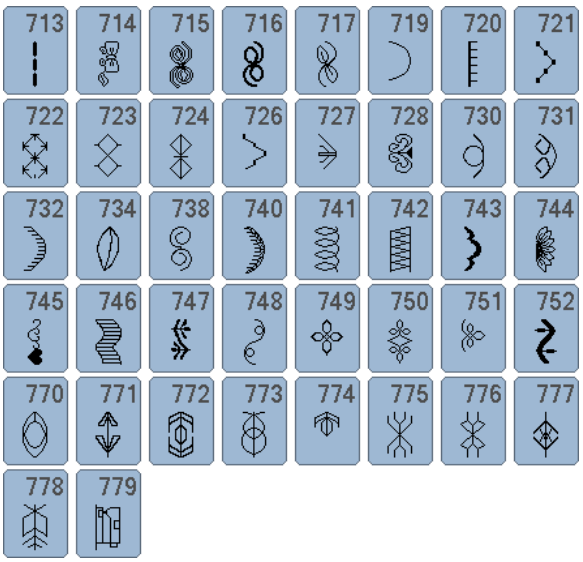


Ornamental stitches

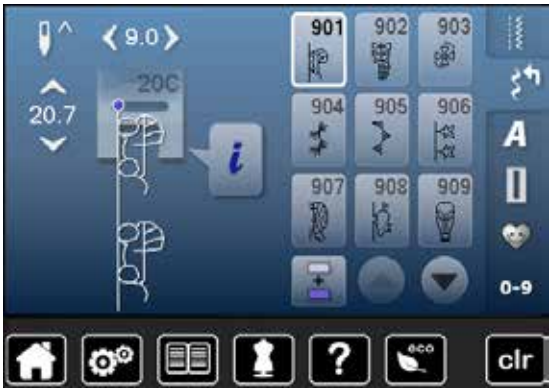


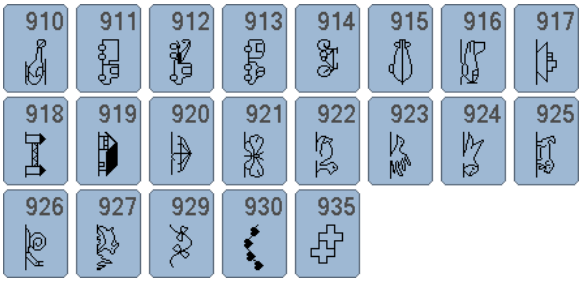
Heirloom stitches





Novelty Stitches





Quilt stitches

Alphabets

Block

P	Q	R	S	T	U	V	W
X	Y	Z	Ä	À	Â	Å	Æ
Ç	È	É	Ê	Ñ	Ö	Œ	Ø
Ü	1	2	3	4	5	6	7
8	9	0	_	-	·	´	!
+	=	&	÷	?	%	@	(
)	[	]					

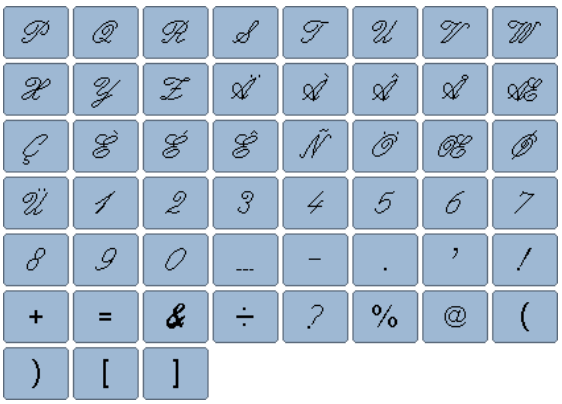
p	q	r	s	t	u	v	w
x	y	z	ä	à	â	å	œ
ç	è	é	ê	ñ	ö	œ	ø
ü							

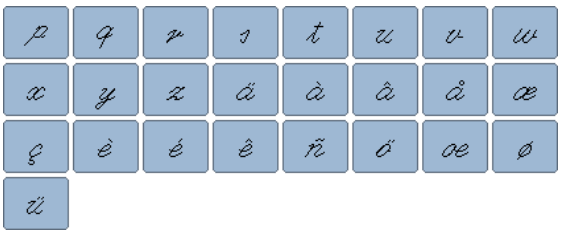
Double-Block

P	Q	R	S	T	U	V	W
X	Y	Z	Ä	À	Â	Å	Æ
Ç	È	É	Ê	Ñ	Ö	Œ	Ø
Ü	1	2	3	4	5	6	7
8	9	0	_	-	.	´	!
+	=	&	÷	?	%	@	(
)	[	]					

p	q	r	s	t	u	v	w
x	y	z	ä	à	â	å	œ
ç	è	é	ê	ñ	ö	œ	ø
ü							

Script





Hiragana

た	ち	つ	て	と	な	に	ぬ
ね	の	は	ひ	ふ	へ	ほ	ま
み	む	め	も	や	ゆ	よ	ら
り	る	れ	ろ	わ	を	ん	ぁ
ぃ	ぅ	ぇ	ぉ	ゃ	ゅ	ょ	っ
が	ぎ	ぐ	げ	ご	ざ	じ	ず
ぜ	ぞ	だ	ぢ	づ	で	ど	ば
び	ぶ	べ	ぼ	ぱ	ぴ	ぷ	ぺ
ぽ	1	2	3	4	5	6	7
8	9	0	ー	_	。	?	!
・	、	「	」	『	』		

Katakana

タ	チ	ツ	テ	ト	ナ	ニ	ヌ
ネ	ノ	ハ	ヒ	フ	ヘ	ホ	マ
ミ	ム	メ	モ	ヤ	ユ	ヨ	ラ
リ	ル	レ	ロ	ワ	ヲ	ン	ァ
ィ	ゥ	エ	ォ	ャ	ュ	ョ	ッ
ガ	ギ	グ	ゲ	ゴ	ザ	ジ	ズ
ゼ	ゾ	ダ	ヂ	ヅ	デ	ド	バ
ビ	ブ	ベ	ボ	パ	ピ	プ	ペ
ポ	1	2	3	4	5	6	7
8	9	0	ー	_	。	?	!
・	、	「	」	『	』		

Kanji

才	組	保	育	幼	稚	園	小
中	学	校	月	火	水	木	金
土							

Cyrillic

О	П	Р	С	Т	У	Ф	Х
Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э
Ю	Я	Ө	Ғ	Қ	Ң	Ө	Ұ
Ү	Һ	І	Ҕ	Ј	Љ	Њ	Ћ
Џ	Ґ	Є	Ї	Ў	Ѐ	Ѓ	Ѕ
Ќ	Ѝ						

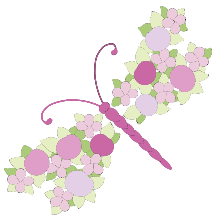
Animals

BD195

85.3mm × 137.9mm

CM211*

70.7mm × 80.6mm



FQ394

98.6mm × 98.3mm

FQ515

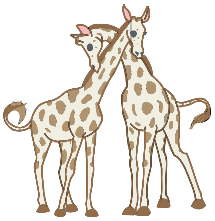
67.1mm × 118.5mm

FQ600

116.9mm × 112.6mm

LJ599

98.0mm × 93.2mm



LJ600

98.2mm × 95.7mm

WM783

124.1mm × 109.1mm

WP224

111.0mm × 100.4mm

WS610

111.1mm × 127.3mm

Free Standing Lace

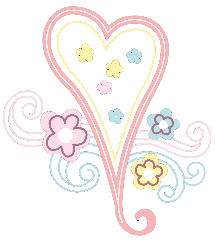
Basic CutWork

Fringes

Application

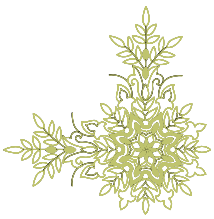
*** This design has special effects. For more information please go to www.bernina.com/5series**

Embellishment



CM198*

106.0mm 96.1mm



FB033

99.6mm 99.3mm

FB106

92.6mm 128.1mm

FB148

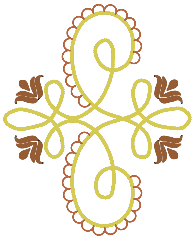
89.5mm 101.1mm

FB323

80.7mm 64.6mm

FB335

52.1mm 102.9mm



FB401

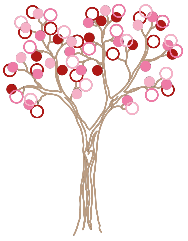
154.6mm 125.6mm

FQ227

72.7mm 66.3mm

NV720

33.6mm 93.8mm



FQ871

170.9mm 132.3mm

HE428

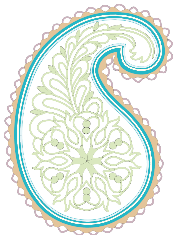
49.5mm 75.1mm

HG203

108.9mm 105.2mm

NA241

90.6mm 84.2mm



NA959*

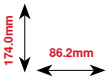
103.7mm 75.6mm

NB209

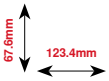
89.9mm 90.0mm

*** This design has special effects. For more information please go to www.bernina.com/5series**

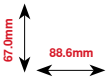
NB385



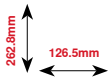
NB481



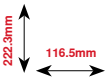
NB711



NB749



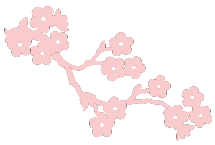
WS655



Floral

BD182

83.1mm × 58.3mm



FB478

70.7mm × 109.5mm

FP246

61.8mm × 65.6mm

FP814

84.4mm × 88.0mm

FQ468

172.8mm × 115.2mm

FQ522

159.6mm × 56.5mm

FQ527

141.4mm × 90.3mm

FQ562

156.3mm × 90.3mm

FQ722

90.6mm × 80.0mm

FQ733

66.5mm × 66.5mm

FQ808

142.5mm × 123.9mm

FQ896

165.4mm × 94.7mm

FQ905

141.6mm × 109.9mm

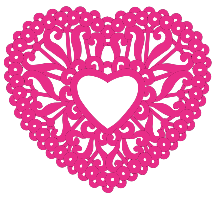
HE700

162.8mm × 103.1mm

WS641

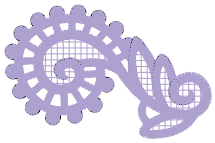
151.4mm × 72.6mm

Lace



NX957

88.1mm × 97.9mm



FB422*

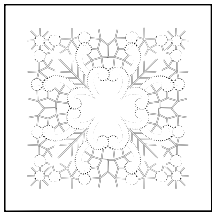
33.8mm × 52.3mm

FB423*

53.6mm × 132.9mm

FB461*

121.6mm × 121.7mm

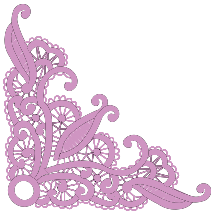


HG341

63.8mm × 63.7mm

NB467

124.7mm × 125.5mm

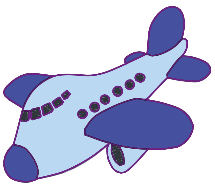


NX696

90.7mm × 91.2mm

*** This design has special effects. For more information please go to www.bernina.com/5series**

Children



CK511

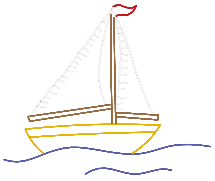
64.6mm × 76.2mm

CK667*

82.3mm × 99.8mm

CK738

85.7mm × 89.1mm



CM013

60.2mm × 73.4mm

CM022

97.1mm × 89.1mm

CM348

167.1mm × 119.0mm

CM376*

97.5mm × 100.3mm

CM433

113.8mm × 167.6mm

CM465

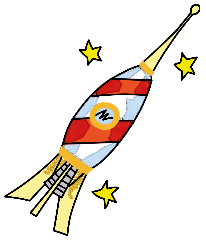
35.8mm × 52.3mm

HE456

72.5mm × 90.2mm

NA667

83.8mm × 83.8mm



NB302

80.7mm × 68.2mm

WP192

81.0mm × 98.9mm

*** This design has special effects. For more information please go to www.bernina.com/5series**

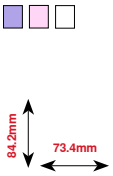
Seasons

CM287

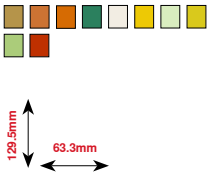
CM426

FQ748

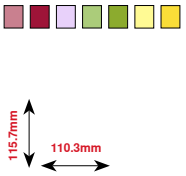
HE543



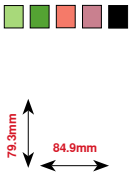
HE563



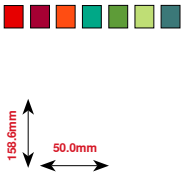
HE900



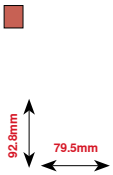
HE969

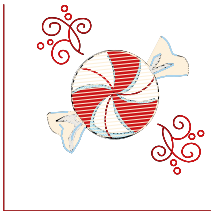


HG177

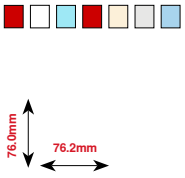


HG317





NA512



Borders

CM473

209.6mm × 31.8mm

FQ559

28.6mm × 136.4mm

FQ741

71.1mm × 26.4mm

FQ810

206.4mm × 23.6mm

HG455

258.6mm × 137.0mm

NA909

19.8mm × 100.4mm

NB520

175.9mm × 26.3mm

NB651

141.0mm × 30.7mm

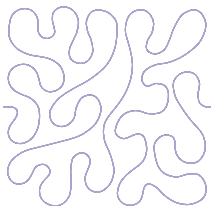
RC768

28.9mm × 85.5mm

FB436

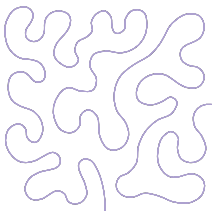
29.2mm × 132.8mm

Quilting



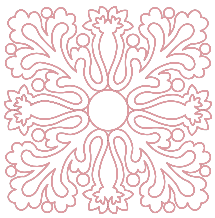
BD501

61.1mm 63.5mm



BD502

60.7mm 61.5mm



BD554

109.9mm 109.9mm

BD562

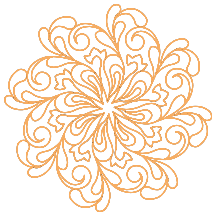
126.0mm 63.9mm

BD563

89.6mm 89.7mm

BD568

160.3mm 109.5mm



BD569

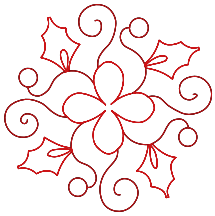
120.6mm 120.6mm

BD666

105.7mm 145.5mm

BD669

215.4mm 67.1mm

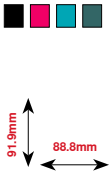


HE960

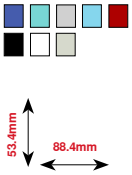
120.6mm 120.6mm

Sports

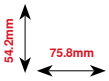
LT604



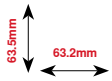
RC244



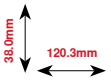
SP266



SP980



SR551



Alphabets

King Charles

Anniversary

Swiss Block

London

Chateau

Guinevere

Emerald

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